COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance
Reg. U. S. Pat. Off.
Acceptance under the Act of June 5, 1934, authorized December 18, 1934.
Published monthly.
Member C.C.A.

Vol. LVIII Philadelphia, February, 1940 No. 6

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SUBSCRIPTION RATES: United States and United States Possessions and all Latin-American countries—$3.00 per year. Canada and Foreign—$4.00 per year. Single copies—40 cents.

Owned and Published by
CHILTON COMPANY
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Executive Offices
Chestnut and 56th Streets, Philadelphia, Pa., U. S. A.

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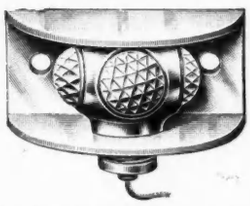

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Commercial CAR JOURNAL
THE MAGAZINE FOR FLEET OPERATORS

LEGISLATIVE LOOKOUT

Congress considers Superhighways and National Defense While Nine State Legislatures Start Battle for Funds

THE Congress of the United States is in session. So also are the legislatures of California, Kentucky, Mississippi, Nebraska, New York, New Jersey, Rhode Island, South Carolina and Virginia. That fleetmen may keep posted not only on what has happened, but also on what may happen within the realm of legislation as it pertains to the trucking industry, COMMERCIAL CAR JOURNAL presents this new department. In the initial installment we scan developments during the first three weeks of 1940. In subsequent issues we shall carry on where this account leaves off so that readers may have a running account of latest developments.

Federal

In Washington, political forecasters are taking the view that most legislative activities will be influenced by three major factors during 1940: National Defense, Spending-Lending and Politics (this being an election year). Of particular interest is the heading of National Defense for under this guise much of the agitation concerning super-highways and toll roads is expected to be revived. Already the Hayden-Cartwright bills (S. 3020 and H.R. 7695) have been dropped into the hopper providing, in addition to the usual biannual appropriations for Federal Highway aid, a strong power for the acquisition of rights of way by means of eminent domain, etc. A senate resolution (S. Res. 202) has been introduced which proposes a special committee to "investigate and study the establishment of a system of 'super-safety' highways." For a review of super-highway developments up to the close of Congress last year see COMMERCIAL CAR JOURNAL, November, Page 32. As to future developments, let the nation watch its collective step.

It will be recalled that S. 2009 is the much discussed Wheeler-Truman bill variously known as the railroad reorganization bill, the Transportation Act, etc. Passed in the Senate last year, it was thrown out in the House and the substitute Lea bill introduced. Conferees were expected to meet "some time in January." Railroads are hoping air and water transport will be brought under I.C.C. jurisdiction. Private truck operators are hoping for exemption.

A bill has been prepared to provide for grading of gasoline in the District of Columbia. It may inspire similar action from the state legislatures and could conceivably influence the design of engines. . . . Members of the Ways and Means Committee are already considering the possibility of increasing the Federal gasoline tax from one cent to two cents . . . and American Association of Highway Officials reports a new set of standards for painting lane lines on highways and hopes that it may be the first of several standards in the direction of uniform highway markings.

State Developments

Striking a singularly concordant note, much of the legislative activity from the states concerns itself with raising sufficient funds with which to meet ever increasing demands upon the treasury. The lucrative gasoline tax as well as other funds from the pockets of motor vehicle owners seems always to be vulnerable for attack. It's a move worth watching. Meanwhile here's a glimpse behind the lines.

CALIFORNIA—In calling special session for Jan. 29, Governor Olsen laid special emphasis on the need to balance revenues with expenditures which now exceed the former by $2,500,000 per month. No further developments have been reported.

KENTUCKY—Regular session opened Jan. 2. Governor Johnson has insisted repeatedly that there be no diversion of state road revenues. A bill to increase the maximum gross weight limit of trucks is in the making but has not yet been introduced. Administration apparently plans to use proposed weight increases as an excuse for new taxes on trucks, particularly on private trucks which are exempt from present gross weight

(TURN TO PAGE 90, PLEASE)

After hours

EDITORIAL COMMENTS BY GEORGE T. HOOK, EDITOR

1. Matters Are Coming to a Head in the Lone Star State of Texas . . . . 2. An Ably-Devised Ability Rating

MATTERS are coming to a head down in the Lone Star State of Texas. For seven years motor truck users have been living with a 7000-lb. weight law, passed in the guise of a safety measure, but actually a discrimination in favor of railroads because it permitted a 14,000-lb. load to be taken to or from a rail-head.

For most of those seven years, to judge from information that we have picked up here and there, the law has discriminated in favor of law-breakers. Enforcement, we understand has been spotty, localized and inconsistent.

Gross loads of 30,000 and 40,000 lb., we are told, are not uncommon. Some of the big operators don't mind being caught with overloads. The nominal fine they pay is more than made up by the additional payload carried.

Recently an operator from one of the western states where gross weight limits are more liberal told us an amazing tale. He met a Texas operator and, being curious, he asked him how in the world he managed to make ends meet under the 7000-lb. law. The Texas operator disillusioned him completely about the observance of the law. He was hauling loads way over the limit, he said, and simply paying his fines. "As a matter of fact," he is reported to have said, "I have a regular charge account with one magistrate. He simply levies the fines and bills me for them at the end of the month."

Now that operator—and others like him—cannot be blamed for finding a way to beat a law so vicious, unfair and ridiculous as the "7000-but-if-14,000-lb." law. Texas is large, distances are great, so the law plainly ignores Texas' economic interests and public welfare.

But it is one thing to beat a vicious law and quite another to prefer its preservation for wholly selfish reasons. And that, we understand, is what some operators are suspected of. The failure of the movement—supported by prominent state officials and candidates for state offices—to change the law at the last session of the Texas legislature is attributed in large measure to for-hire carriers who felt that they had more to gain by preserving and breaking the existing law whose penalties were insignificant when compared with the profits produced by infraction. Perhaps they even reasoned that since freight must be moved the law-breaking operator had an advantage that would disappear if fair weight

Ears TO THE GROUND

Camshaft Chronometer

One of this department's agents who does not mind getting his hands dirty peered behind a timing case cover and found therein concealed a timing device which provides the camshaft with an automatic advance like the one which has taken spark control from the driver's hands for, lo!, these many years.

Engine Eclat

A prominent truck builder has his experimenters working on a new 370 cu. in. engine from which he expects to take 130 hp. He warned our agent not to grow so enthusiastic in print about it that it would commit him to anything because it was still problematical if the engine would ever see a production line.

Filter Fit

The top sargeant feels that he will have to speak sharply to a midwestern agent who reported that an oil filter manufacturer is about to announce a universal replacement cartridge. The idea is that you do something about as hard as snapping your fingers and the cartridge fits any filter.

CCJ Quiz

(Correct answers on Page 86)

Robert F. Bahl of Wheeling, W. Va., has a matching quiz. He wants you to match the correct numbers with the correct letters. Mr. Bahl better be right because there are one or two points we are unable to check. We shall refer all threatening letters to Mr. Bahl. Score yourself in the usual fashion.

1.

1. Sterling	a. Milwaukee, Wisc.
2. Diamond T	b. Cleveland, Ohio
3. Autocar	c. Chicago, Ill.
4. White	d. Ardmore, Pa.

2.

1. Stromberg	a. Magneto
2. Bosch	b. Carburetor
3. Thermoid	c. Wheels
4. Budd	d. Brake Lining

3.

1. L-head	a. Valves in cylinder head.
2. T-head	b. Valves on one side.
3. I-head	c. Valves on opposite sides.
4. F-head	d. One valve in head, one on side.

4.

1. Warner	a. Hydraulic Brake
2. Lathan-Bessler	b. Vacuum Brake
3. Wagner	c. Electric Brake
4. Lockheed	d. Air Brake

5.

1. Mack	a. American Beauty
2. Reo	b. Bulldog

limits were established and shippers were encouraged thereby to do their hauling in their own private trucks.

Could this be one of the reasons why private truck operators have organized their own association in Texas; why they are making a militant effort to change the 7000-lb. law and make it more like the weight laws of adjoining states?

If it is, then it is a pity. The carriers whose selfishly short-sighted attitude brought about the cleavage should realize that they have done highway transportation a disservice. It is conceivable that all types of truck operators should not see eye-to-eye on the subject of regulation. But it is inconceivable that they should not stand shoulder-to-shoulder on such fundamental, common matters as size and weight restrictions. They stand together in other states. They should stand together in Texas.

If obstructive selfishness exists in Texas it should be eliminated as quickly as possible before animosities grow, root themselves and bring forth a bitter crop of retaliatory measures that will be sweet for the railroads.

The 7000-lb. load law is a blot on the State of Texas; its enforcement is a smear. All operators should unite to effect its repeal and to get legislation that will be fair to trucks and more truly in the public interest.

An Ably-Devised Ability Rating

THE truck industry is indebted to the S.A.E. Motor Truck Rating Committee for having devised an ability rating that can be used in the establishment of minimum performance requirements without freezing truck design.

By the simple and logical recommendation that ability be stated in terms of "pounds of gross vehicle weight per horsepower delivered to the clutch," the S.A.E. committee provides legislators and regulatory authorities with a sound engineering formula and at the same time not only preserves the flexibility of truck design but actually provides an incentive for making improvements in design.

It would, of course, be up to legislators and regulatory authorities to determine how many pounds of gross weight should be allowed for each net horsepower delivered by the engine. But whatever the permissible poundage the emphasis would be on horsepower. As a consequence we could expect to see an acceleration of the current movement to increase engine efficiency. It would be

"Of course you change to a lighter oil in cold weather?"

an improvement for which truck operators should be only too willing to pay because every increase in horsepower output for a particular displacement would mean hundreds of pounds of additional gross vehicle weight.

The S.A.E. rating committee is now engaged in solving its second problem, that of devising a method of rating the capacity of motor trucks. This is a more formidable task, but a solution may be effected before summer comes because much of the preliminary spade-work has already been done.

The agent did not tell us what you do or how you get around the size question.

Speed Setting

This same agent redeemed himself however by reporting on a new vacuum governor. Under features he says, "a good governor at a low price."

Powder Picture

A company that powders metals and then bakes them into permanent form reports that a copper alloy so treated showed evidence of being an ideal filtering material for gasoline, crankcase oil and diesel fuel. It looks like a sponge but it is hard.

Transmission Topic

Consulting with two transmission and clutch makers brought this department nothing of a specific nature but both manufacturers agreed that the truck industry was a great deal nearer fluid clutches and transmission than the casual observer might think and that when it came they would be ready for it.

Here's the first tractor trailer unit completely equipped with Differential Dual wheels. Greater safety from blow-outs, more load carrying ability and even easier handling are claimed for the dual-wheel front end

---

3. Dodge	c. Speed Wagon
4. Studebaker	d. Commander

6.

1. William E. Metzger	a. Inventor of American speedometer.
2. B. A. Gramm	b. First independent automobile dealer.
3. J. W. Jones	c. Built first valve-in-head, air-cooled engine.
4. John Wilkinson	d. First to introduce power take-off.

7.

1. Wm. S. Knudsen	a. President, General Motors Corp.
2. Tom Moss	b. General Manager, Chevrolet Division of General Motors.
3. Paul G. Hoffman	c. Director of Truck Sales, Dodge.
4. M. E. Coyle	d. President, Studebaker Corp.

8.

1. Mack	a. Introduced shaft drive on motor vehicles.
2. G.M.C.	b. First one-ton truck with four wheel brakes.
3. Studebaker	c. Developed nickel molybdenum-steel.
4. Autocar	d. First to adopt vacuum-type booster.

9.

1. 1908	a. Ford buys River Rouge factory site.
2. 1914	b. Ford puts out ten millionth car.
3. 1916	c. Ford sets minimum pay for factory workers. at $5 per day.
4. 1924	d. Ford introduces Model T.

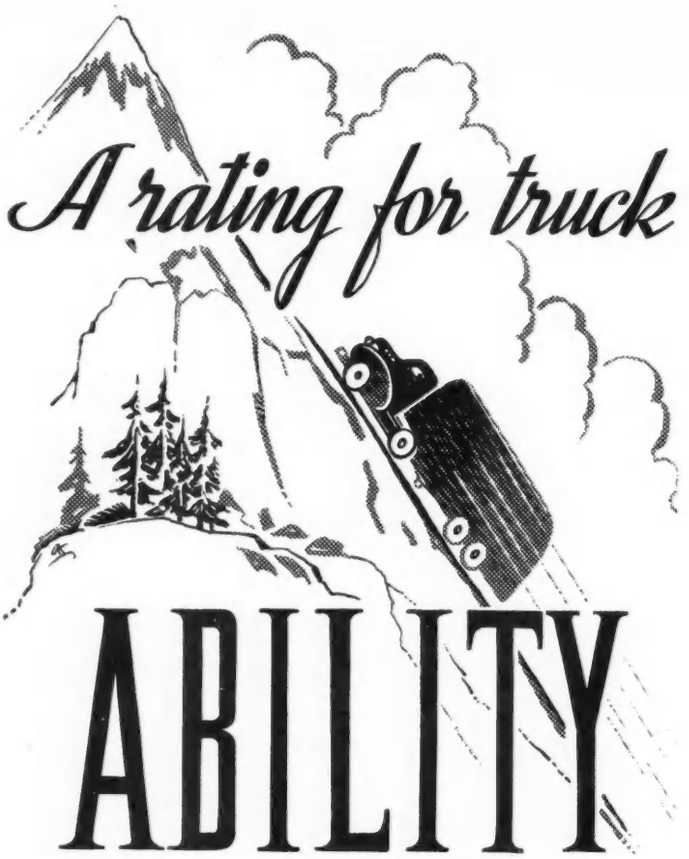
10.

1. Waukesha	a. Brakes
2. Wisconsin	b. Axles
3. Weed	c. Chains
4. Westinghouse	d. Engines

"THE potential ability of a motor truck (or combination) shall be rated in pounds of gross weight of truck (or combination) per brake horsepower delivered by the engine to the clutch or its equivalent."

"Where legal minimum performance requirements are adopted, they should preferably take the form of a rule that no vehicle (or combination) will be licensed for a gross weight exceeding the product of the certified horsepower, multiplied by the legally permissible pounds per horsepower."

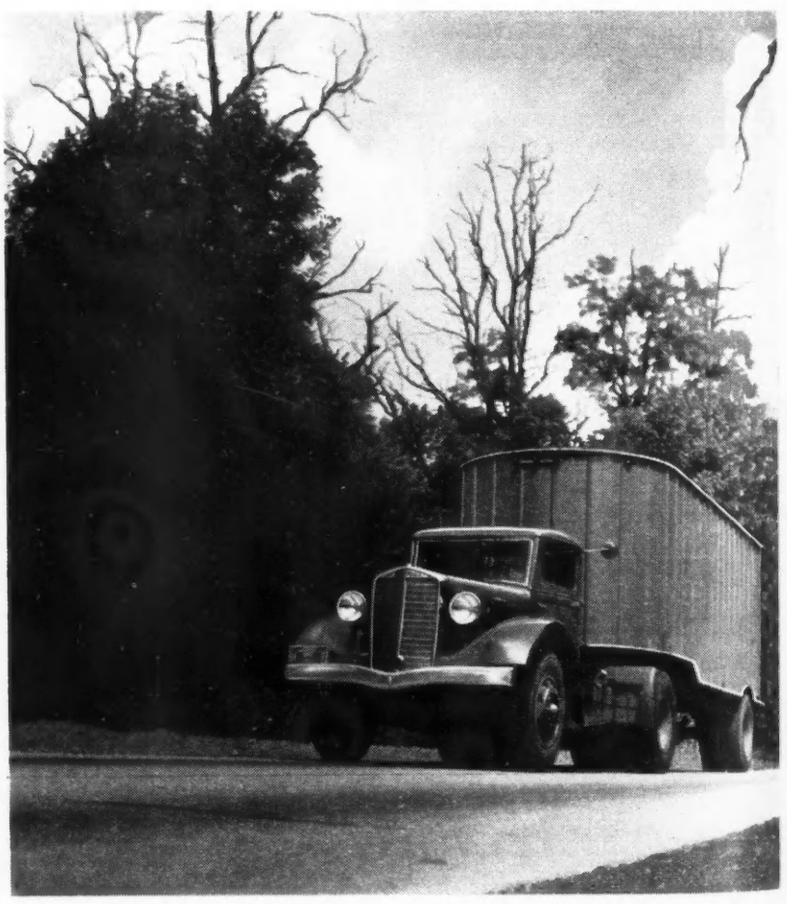
A rating for truck ABILITY



There, if you want it in nutshell fashion, is the way the Society of Automotive Engineers wants truck ability determined if highway officials and legislators insist upon making truck ability the object of their regulatory affection. And there is insistence that something be done about slow-moving trucks. To be candid, highway officials have prodded the manufacturers to do something about the problem. The highway official attitude was expressed to Congress in 1937 by the U. S. Bureau of Public Roads in these critical words:

"It is apparent, however, that greater hill-climbing ability is an outstanding need of freight vehicles. This may be obtained by providing the greater motive power necessary to move present maximum loads, or by reducing the loads to limits fixed by the ability of present motors. But, in either case, it will be necessary, if present annoying and dangerous uses are to be prevented, that the performance ability of trucks and tractors shall in some terms be exactly defined by their manufacturers. and that by adequate legal regulation and enforcement the use of such vehicles shall be kept within the defined limits."

Without mincing of words it was made clear to manufacturers that if they didn't do something voluntarily. then others would attempt a solution which might not be palatable to the truck industry. So the truck manufacturers asked the Society of Automotive Engineers to devise first a method for rating the ability of motor trucks, and, second, to devise a



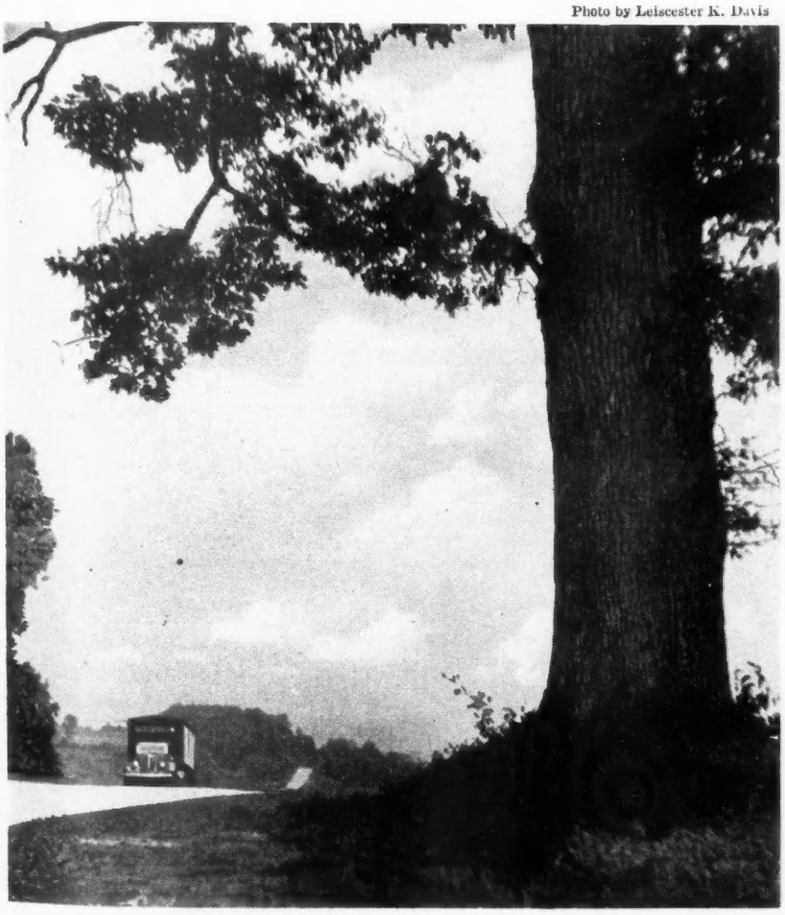
By

GEORGE T. HOOK

Editor, Commercial Car Journal

Truck manufacturers endorse S.A.E. recommendation that ability of trucks and combinations be rated in pounds of gross weight per brake horsepower at clutch

Photo by Leicester K. Davis



capacity rating method for motor trucks.

The S.A.E. forthwith organized a Motor Truck Rating Committee. To make it completely representative there were named to the committee men from fleet operations, truck factories, trailer factories, parts factories and tire factories. A fleetman —F. K. Glynn, of the American Telephone & Telegraph Co.—was made the chairman. The committee set to work in June, 1938, and after a year and a half of intensive effort, produced its solution of the first problem dealing with the ability rating. During that period meetings were held at White Sulphur Springs, W. Va., New York City, Philadelphia, Detroit, and once aboard Mr. Glynn's cruiser in Long Island Sound. The writer, having attended all but one of the meetings of the full committee and of the executive committee, can testify that every member of the committee sensed the responsibility of his position and the importance of the problems before him. As a result, the headwork, the paperwork and the discussions were thorough and a credit to the industry.

At first there were, quite naturally, conflicting viewpoints. These gradually merged into a unanimous solution. The committee's solution was, in turn, unanimously approved by the Motor Truck Committee of the Automobile Manufacturers Association.

Early in its deliberations the committee discarded the proposal that the ability of a truck or combination be stated in terms of a specified minimum speed up a specified grade as, for example, 3 per cent at 20 m.p.h. The committee argued its opposition thus:

"A rating on this basis would make the test a single combination of grade and minimum speed. While such a rating would describe the ability of the vehicle under the selected combination of conditions, it would give no similarly precise indication of ability under other combinations of grade and minimum speed.

"Moreover, this method of rating would place a limitation on design and operation since its effect might well be to cause manufacturers and

(Turn to Page 82, Please)

WELL OVER 300 interested men saw and heard instruments and instrumentation dominate the sessions of a five-day Fleet and Automotive Conference sponsored and conducted by the Ethyl Gasoline Corp., Dec. 4 to 8, at New York City. Demonstrations and discussions of instruments and their uses alternated with other phases of operation, but to this observer the former appeared to be the most absorbing to the fleet men in the audience. The fact that the conference held the interest of fleet men for a five-day period was a tribute to the quality of all of the sessions.

Experts on specific phases of fleet maintenance and operation were called upon by the Ethyl Gasoline Corp. to discuss the subjects assigned to them and to conduct a question period at the close of each discussion. The whole conference was under the direction of Errol J. Gay who, in addition to conducting some sessions himself, introduced the speakers and kept the conference rolling at an interesting pace. Mr. Gay was aided in this coverall assignment by Julian J. Frey and C. E. Smith of the Ethyl Gasoline Corp.

The climax of the week came on the morning of the last day when a portable dynamometer was set up. To demonstrate the effect of cold operation the manifold of the test truck was packed in dry ice. The truck was then operated on three types of gasoline, light, intermediate, and heavy. The light or more volatile gasoline smoked some and the other two types smoked considerably. The three types of fuel were then run through the engine with the manifold pack removed and there was a trace of smoke only when the heavy fuel was used.

Another demonstration showed the effect of load and speed upon fuel mixtures. The mixture ratio varied as much as three points in the useful range of speed and load, which indicated, at least to this observer, that carburetor adjustments and calibrations should be made under operating conditions and not idling on the shop floor.

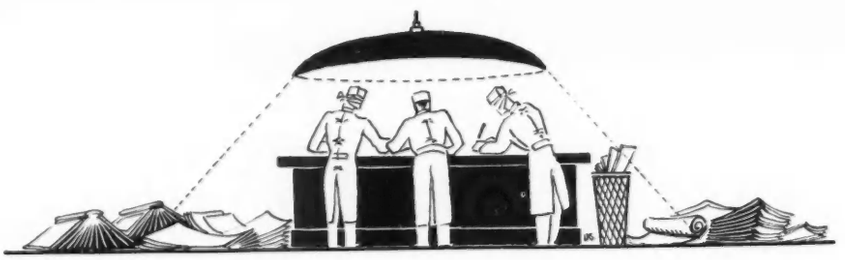
During the first day Mr. Gay demonstrated a carburetor float level test stand and a carburetor jet flow stand. During this demonstration Mr. Gay suggested that fleet operators drill and tap fuel level holes in the float chamber of their carburetors so that fuel levels could be determined without removing the carburetor.

Ethyl's Clinic Director Errol J. Gay

. . . and Ethyl assistant C. E. Smith

Valve manufacturer Vincent C. Young

. . . and Valve Maintainer F. H. Schell



Maintenance clinic demonstrates ways to reduce the swelling of the budget, paralysis of the operator and chronic lethargy of the fleet shop

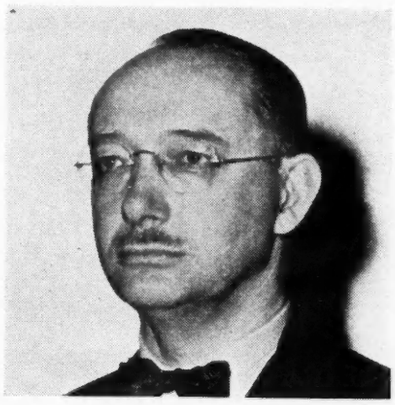
These demonstrations were followed by a discussion of spark plugs and fuel pumps by Sumner Howard, service manager of AC Spark Plug Co. During his discussion of fuel pump maintenance, Mr. Howard stated that so long as a fuel pump delivered the correct amount of fuel at the correct pressure it made no difference what the reading was on the vacuum side of the pump and that there was no point in taking a vacuum reading. This idea did not appear to meet with complete agreement and considerable discussion followed. The discussion did not reconcile opposing viewpoints. Closing this session C. E. Smith of the

AC's fuel pump expert Sumner Howard

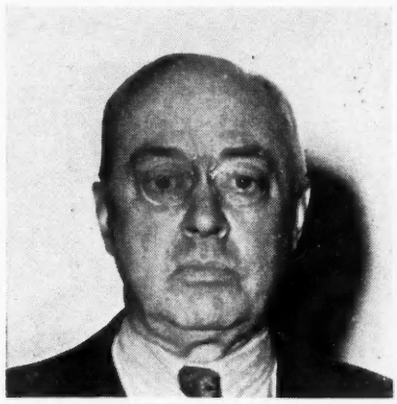
V. O. Hutton analyzes exhaust gases

Chalk-talker Fitzsimmons, Delco-Remy

White's Robert Cass looks into future



Mack dialogue team Merrill C. Horine



. . . and D. C. Fenner also forecast

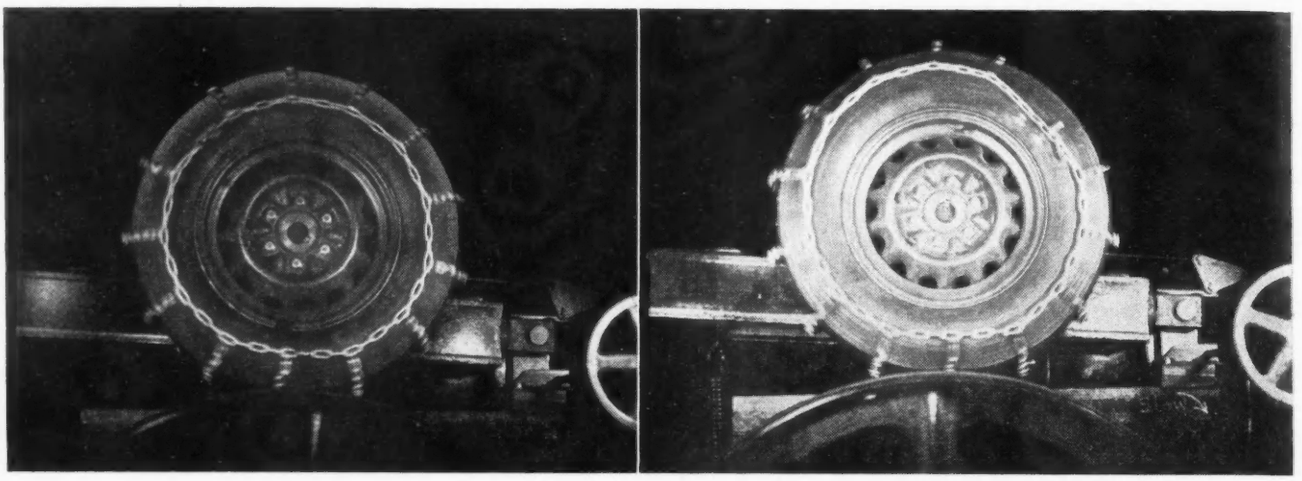
SHOP SURGEONS OPERATE ON FLEET COSTS WITH *Instruments*

Ethyl Gasoline Corp. showed a slide and described a fleet developed fuel pump test apparatus that he had come across in a bus fleet shop. (For details see Shop Hints feature in this issue.)

Mr. Howard made a point of saying that in rebuilding a fuel pump it is important to have the diaphragms extended to a full stroke when the tops are put on. Relative to spark plugs Mr. Welles said that he could see no purpose in installing the smaller type plugs in engines originally equipped with larger ones. The advantage of the smaller plugs is that they heat up more quickly and cool more readily but by the time the reducing bushing is placed in the hole this advantage is lost, he said.

Earlier E. F. Wenzel, Bendix Products Division, had given a thorough treatment of the principles of modern carburetors and some hints on servicing them. The next day's sessions started with E. A. Haskins, service manager of Hercules Motor Co., describing the construction of a diesel engine and the essential differences

(Turn to Page 58, Please)



Stroboscope pic:ures show effect of proper balance, left, and improper balance, right, caused by wide spacing at end hook

BALANCE

IS THE LINK TO LONGER CHAIN LIFE

Study shows missing links, weight concentrations and looseness shorten life of tire chain

WHEN J. Willard Lord, carrying out his routine duties as Safety Engineer of the Atantic Refining Co. came to the subject of tire chains as safety engineers do sooner or later, he was not at all satisfied with the information available. He was alarmed by the number of miles operated without chains because chains had failed in service and trucks were unable to put into a company shop to have the chains replaced until after they had completed their runs. These failures had helped to create a driver aversion to chains in parts of the operation that had to be corrected if he was going to insist that chains be used at all times when snow or ice was encountered.

Mr. Lord wisely decided to find out something about chains and do what he could to eliminate "chain irritants" instead of forcing them down the drivers' throats "as is." As his investigation developed he not only did what he set out to do but he also picked up some facts that should help the Atlantic Refining Fleet budget.

Since wear is the greatest problem the operator has to contend with in chain equipped vehicles, this factor was investigated first. For the test a truck equipped with 9.00/22 tires and carrying half its normal load, was used. New chains were fitted and the truck was operated on dry, concrete roads. The chains were fitted to the inner wheels for one day's running and on the second day they were fitted to the outer duals and run until a failure occurred.

At first the chains were installed as tightly as possible. This fitting was impractical because before many miles had been covered it was found that the chains would not creep and consequently the tires were chafed. It is still felt that the tight fit is the best if chains can be left free to creep. This would be accomplished if the tire tread pattern did not project so far at the shoulder of the tire. It is the edge of the tread pattern that prevents creeping with a relatively tight chain.

The destruction tests showed that the method of installing and maintaining chains is more important than the quality of the chain itself although this latter item is not one to be disregarded. The tighter the chain the better, provided the chain can creep. A chain of the correct tightness for long life without damage to the tire can be tested by pulling a cross link directly away from the tire by hand. The knuckle of the hand should be about 1 in. from the tire.

Balance is the chief determining factor in chain life. The tests showed that without variation the first cross

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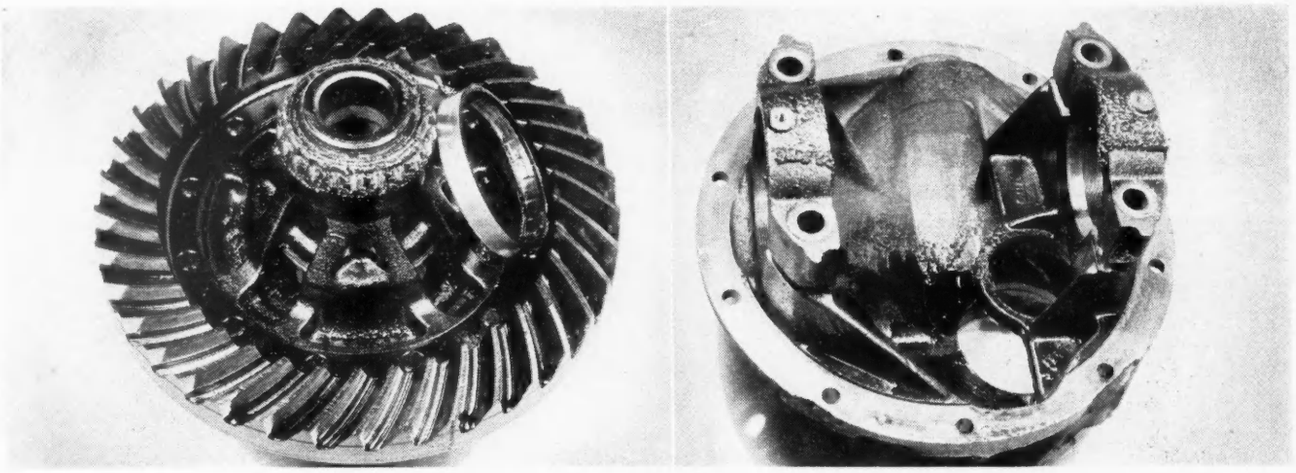

These photographs, taken after dynamometer test, show what happens to rear axle parts when oxidation of oil occurs

HELP ON HYPOIDS

Experts prescribe inactive lubricants for best and safest results in truck hypoid rear ends

By **JOSEPH GESCHELIN**
CCJ Detroit Technical Editor

JUST WHEN the hypoid gear lubrication business seemed to have settled down for a long pull with a fairly clear understanding of what it was all about, comes a reshuffling of the pack and with it a need for further clarification.

Reason for the new deal (and we do mean lubrication) is the discovery that many of the hypoid lubes now in wide use and distributed the country over, are unsatisfactory when used in trucks fitted with hypoid rear ends. This became apparent upon the introduction of the 1½-ton trucks with hypoid rear ends by Chrysler Corp. and Chevrolet.

Up to this point, it had been generally accepted that the so-called "active" hypoid lubes were admirably suited for all passenger car rear ends. And they seemed quite suitable for the light commercial jobs. But that was before the advent of the heavy-duty jobs with hypoids.

Exhaustive tests made by interested vehicle manufacturers indicate that when the "active" passenger car hypoid lube is used in a truck hypoid axle where the speed is relatively slower but the torque correspondingly higher, the resulting high operating temperatures are accompanied by excessive removal of metal, apparently due to chemical activity of sulphur. This action has been found consistently true in heavy-duty service.

In view of this serious turn of events, the vehicle manufacturers are making it clear to the fleetmen that every precaution must be taken to assure the use of the right kind of lube for truck hypoids. Under no circumstances may the "active" passenger car lube be used in the truck job. This in itself would not be a serious matter were it not for the fact the passenger car lube now is widely used and widely distributed, and there is always a danger that the service station will use this product when lubricating the truck.

It is obvious now that the automotive industry will demand a reclassification of hypoid lubes, perhaps in the following general terms:

1. Truck Duty Hypoid Lubricant
2. Passenger Car Duty Hypoid Lubricant

However, the important research men of the automotive industry have been trying for a long time to simplify lubrication specifications, trying to cut down the number of lubes not only to reduce the problem of distribution and storing but also to prevent trouble due to the use of the wrong product. These men have urged the oil industry to develop a single—universal—hypoid lube that

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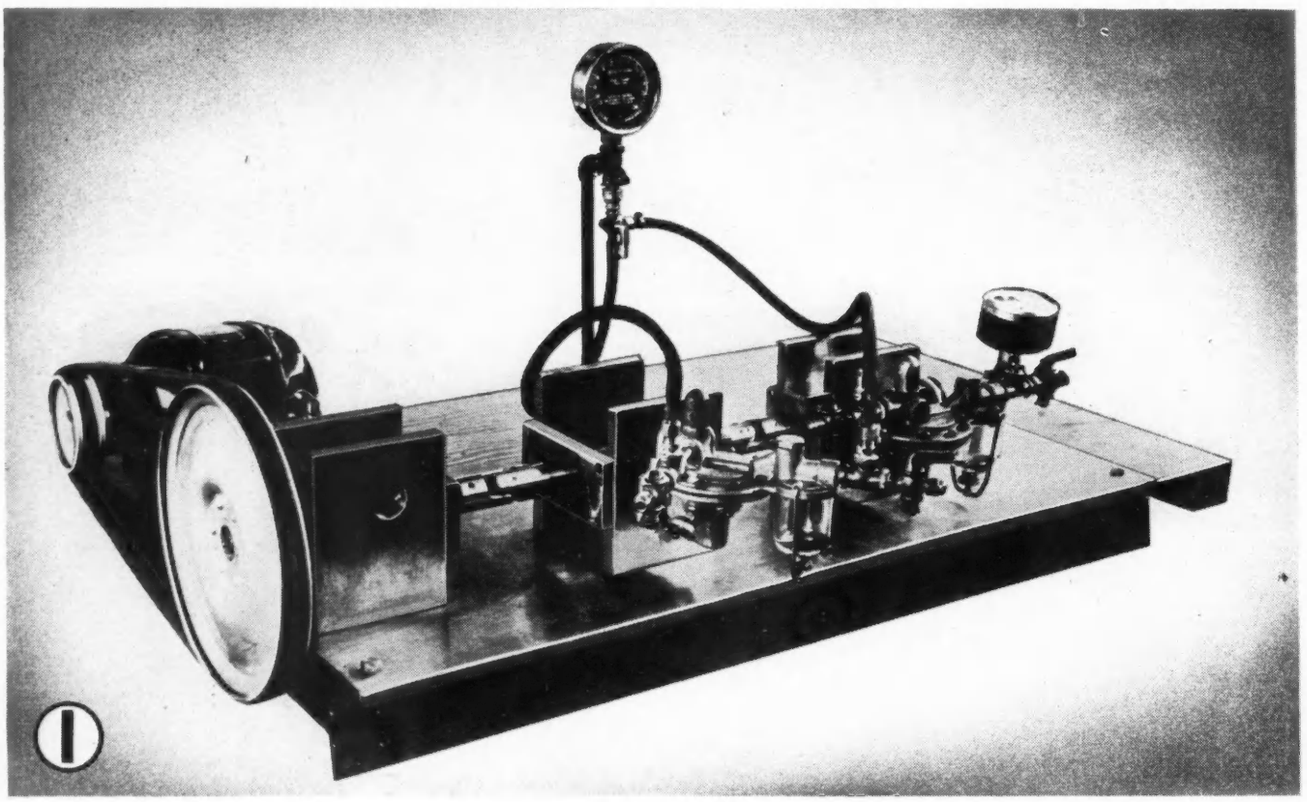


SHOP HINTS .... FROM

1. Fuel Pump Test Stand

Described by C. E. Smith

Ethyl Gasoline Corp.
At Ethyl Fleet Conference, N. Y.

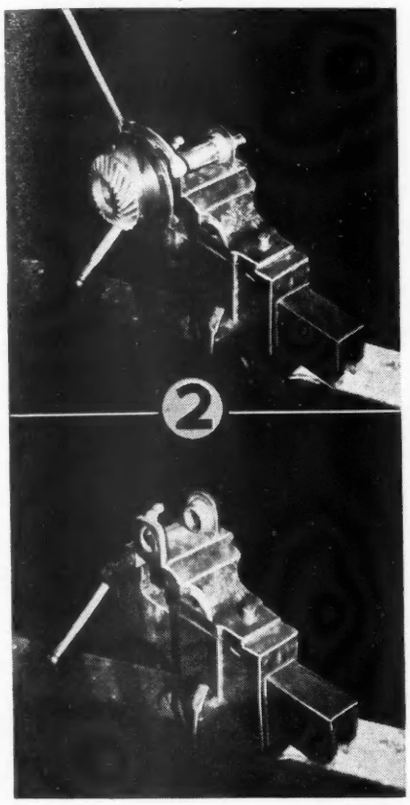
The fuel pump test stand consists of a shaft on which is placed one or more cams ground to the same dimensions as those which operate a given fuel pump on the engine. Fixtures to accommodate the individual fuel pumps are then built around each cam so that the different model fuel pumps can be mounted in the same relationship to the cam as they are when installed on the engine. In the case where two or more cams are used universal joints are used to connect the various segments of the shaft so that an expensive line boring job can be eliminated. The shaft carrying the cams is actuated through a pulley by a variable speed motor and a tachometer is carried on the free end of the shaft so that the speed of the cams can be varied to simulate engine operating conditions. A fuel pump test gage is mounted on the stand and connections are arranged to take both vacuum and pressure readings.

The usual procedure is to mount the pump on its fixture and rotate the cam at a speed of approximately 400 R.P.M. and taking pressure readings with the discharge line closed. Following this pressure reading, the discharge line is opened into a calibrated container and the capacity of the pump is checked with a stop watch. Then the speed of the cam is increased to about 1500 R.P.M. and capacity and pressure again checked to test operation at higher speeds.

Vacuum readings can be taken and the rate of decrease of vacuum after the pump is stopped is to some extent an indication of how well the intake

CAN YOU USE $5?

That's what Commercial Car Journal pays for each shop hint accepted for publication on these pages. Simply send in the idea which you believe to be original. Don't worry about style. CCJ will prepare it for publication



FLEET SHOPS

2. Lock Nut Fixture

By Harry Wille

St. Joseph (Mo.) Light, Heat and Power Co.

As can be seen in the photographs we have welded a spline hub taken from an old clutch plate to a piece of angle iron and drilled a hole in the angle iron to line up with the spline hole in the hub. Both sides are left square so the fixture can be tightened in a vise. Now we can tighten or loosen lock nuts without any loss of time or damage to the shaft or gear.

3. Battery Truck

By Paul Volk Drexel Hill, Pa.

To move the heavier batteries about the shop we made a battery truck of a discarded spring main leaf, a couple of lengths of iron and two old ball bearings. A hook passed through the center bolt hole holds the strap carrier which can be either the wrap around type or one with the terminal post eyes.

Matching Paint

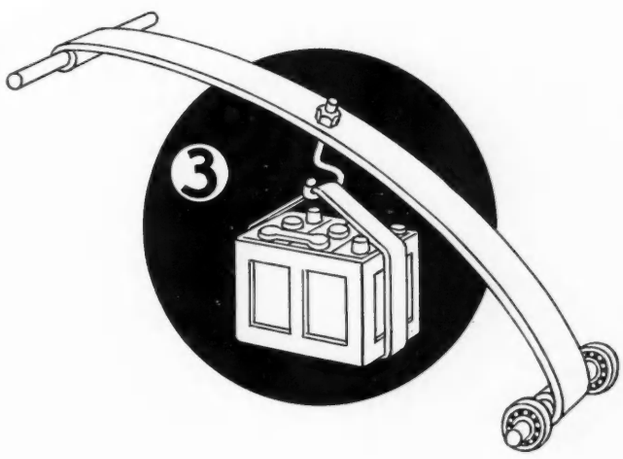
By H. J. McShane

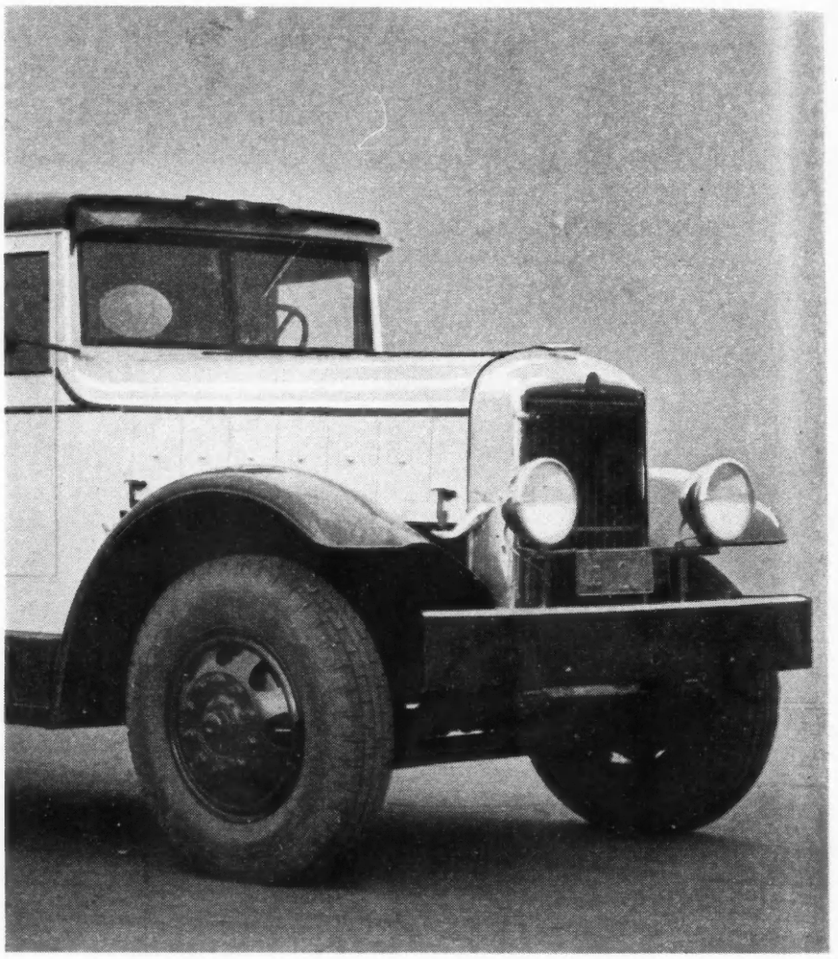
Ditzler Prize Contest Winner

Like most painters I had trouble matching colors on some late vehicles, especially the light ones. No matter how much I stirred the paint I was always a little shade off. The remedy is to open the can of color and pour the contents into another container. Take 15 or 20 small nails such as body nails and place them in the color can. Pour in a little thinner and shake. This will put every bit of pigment in suspension. Pour the contents into the other container, stir well, thin to spraying consistency and go to work.

valves are seating. However, the vacuum test can only be established after considerable work with a given group of pumps so that some correlation between good pump operation and the rate of vacuum loss can be established. The pressures and capacities expected of given pump models can be had from pump manufacturer.

This bench testing of fuel pumps does not supplant testing on the engine which certainly should be done if proper pump operation is to be expected. The bench test is only a means of checking how well the overhaul work has been done.



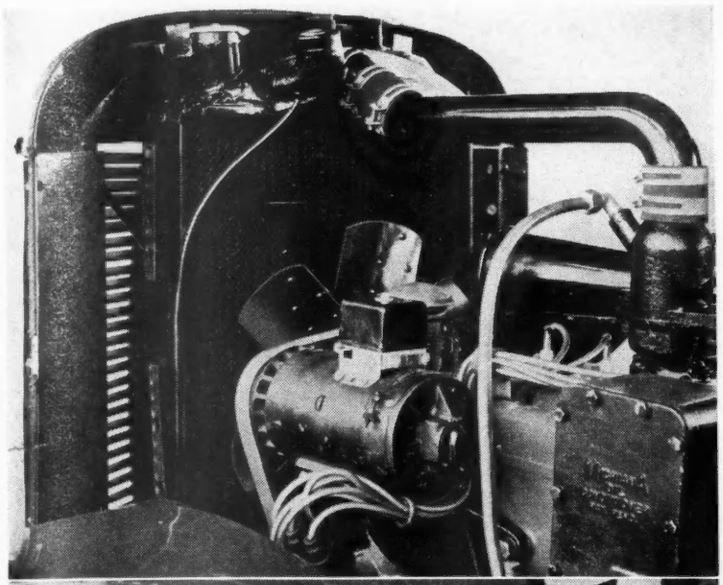


TEMPERATURE *Technique*

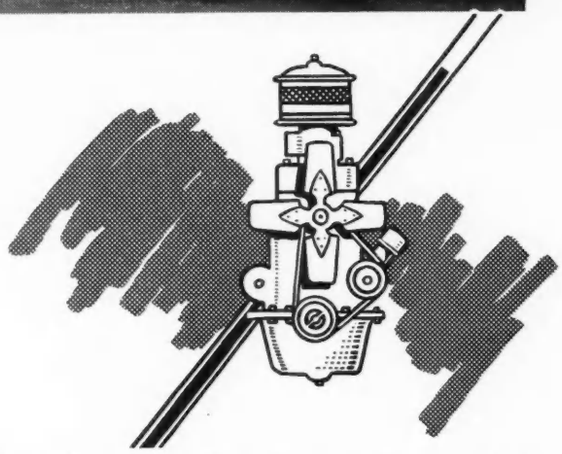
MAINTAINING engine temperature within an economical range is recognized as a major factor in fleet maintenance. It is preventive maintenance in its broadest form because it represents long range planning to prevent many of the ills that beset the fleet-operated vehicle, whereas the periodic inspection commonly referred to as preventive maintenance is the actual adjustment or replacement of parts when the indications of early failure are present. The two compare as the hygienic measure of brushing teeth compares with the filling of a tooth by the dentist so that the tooth will not have to be pulled in the immediate future. No one would be willing to argue that it was unnecessary to brush the teeth because a dentist could fill any tooth at a later date if it should show signs of failure thus eliminating the necessity for pulling the tooth.

Everyone seems to agree that engines should operate at a temperature higher than 170 deg. and the varying opinions seem to converge on the range of 180 to 190 deg. as the correct operating point. This temperature is the temperature of the water in the cylinder head. Actually at this temperature there is steam present at the exhaust valves, a point that the steam cooling adherents never omit from their arguments—but let's confine this discussion to the water-cooled engine.

The water-cooled engine is designed and manufactured to be operated at about 180 deg. Fahr. with the temperature taken at the point at which the thermometer is mounted. The reason it cannot be operated at that point at all times, unless measures are taken to make it operate so, is because the engine cooling sys-



Various devices for aiding the temperature technique include the radiator shutter, manually or automatically operated, the "sawed off" fan blades and the tailored canvas cover with slide fastener for manual adjustment. At bottom left is a new fan with variable pitch blades, which are automatically controlled by a thermostat



Is the key to important economies in truck mileage and maintenance

tem is provided to operate in atmospheric temperatures ranging from over 100 deg. to perhaps 30 below zero. This operation is to take place under varying conditions of service and there must be ample safety margin in the case of either extreme.

Thus, the cooling system must have ample capacity for severest full-load type of work, yet it is called upon to operate under much less critical conditions most of the time. In fact, a large percentage of the engines never operate under full load and relatively few of them operate in extremely hot atmospheric temperatures for any great portion of their lives. The result is that most engines operate at far too cool a temperature leading to mechanical, lubrication and fuel consumption difficulties.

If engine temperatures can be controlled it is possible to:

Use oil of more suitable viscosity.
Use more suitable fuel.
Prevent excessive engine wear.
Prevent dilution of lubricant.
Prevent sludge.

Each of these points is rather large in scope and requires a little explanation so we start with the first—use of more suitable lubricant. The oil used by a fleet in summer is more satisfactory generally than the oil used in winter provided the lubricant is chosen wisely for both periods. The heavier or more viscuous oil is better suited to the greater bearing loads imposed upon the engine bearings in trucks and the rate of consumption is less. This would give the heavier oil an edge both in the replacement cost and the rate of wear.

In addition fleet experience has shown that the lighter oils have a greater tendency to form carbon in the head and on top of pistons as well as a greater tendency to form sludge. The reasons for using the lighter oils is simply for ease in starting and warming up a cold engine. If the vehicles are stored in a heated garage there is no starting problem. If they can be brought up to normal operating temperature and kept there despite stops of reasonable length and periods of idling, it would be possible to use the heavier oil with its desirable characteristics.

The fuel the operator buys in summer is better suited to his needs than the fuel sold in cold weather provided he is in position to take advantage of it. The miles-per-gallon drop when cold weather hits and that is largely the result of cold running. If the engine could be kept at normal tem-

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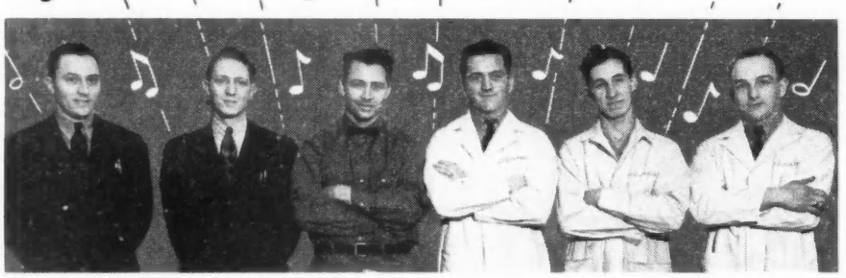
THE "Schwahn Song"



. . . . of road failures and high costs is played with modern shop equipment

Simplified inspection program and equally simple cost system join in the harmony for economical operation

By

DONALD J. LELAND
A. F. Schwahn & Sons Co., Eau Claire, Wis.

Schwahn fleet personnel, shown above, consists of Frank Mousel, assistant superintendent of plant; Donald Leland, accountant and author; Alvin Kloss, mechanic; Bruce Bellows, head mechanic; Kennith Woodford, mechanic, and Hayden Bowers, tire man and mechanic. Opposite page: Two views of modern shop and part of fleet

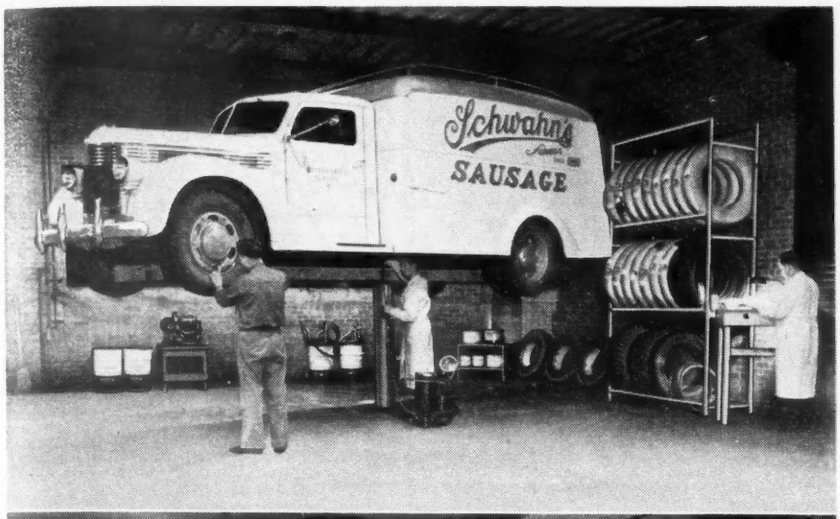
OUR BUSINESS consists of the manufacture and distribution of fresh sausage and luncheon meats. We are also distributors for the Kraft cheese line. Our salesmen sell to the retailer directly from the trucks, with the result that they carry a large load for most of their trip. The average run for one of our 22 trucks is between 800 and 900 miles per week.

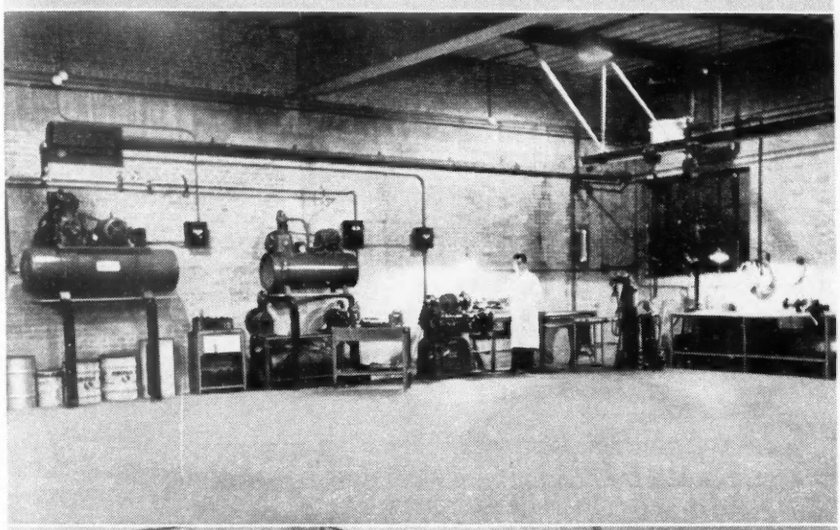
This business calls for the use of 16 refrigerated trucks of 10,000 to 12,000 lb. gross capacity, two trucks with van bodies, three with panel bodies, one stake body job and a coupe. We operated this mixture 719,668 miles last year at a cost of $.0475 per mile including depreciation. If you like the figure without depreciation, it was $.0369.

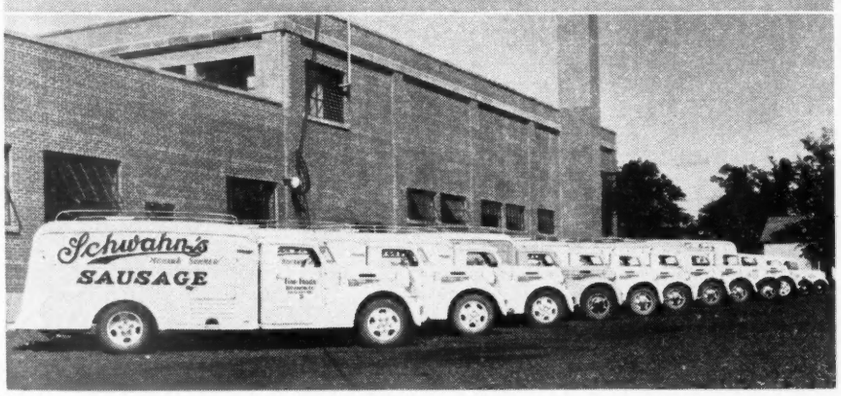
Since we are in the food business our policy is to keep the trucks looking clean and handsome at all times. All of the trucks are white and they are washed every night if necessary to keep the appearance up. All dented fenders and other parts are repaired immediately or replaced if they cannot be made to look like new. We feel that the trucks are one of our best means of advertising.

Our garage is large enough to house the complete fleet. As we just moved into our new plant in September, 1937, our equipment is of the latest type. Equipment includes: hydraulic hoist, high pressure grease gun, turning lathe, battery charger, exhaust analyzer, compression tester, welding equipment, large air compressor, and spark plug cleaner and tester.

The garage work is divided among four men. Garage foreman Frank Mousel has recently been promoted to assistant superintendent and personnel manager, so his work in the garage is limited to supervision and parts buying. Bruce Bellows, mechanic, does all major repair work, and specializes on carburetors, fuel pumps and ignition. He spends all of his spare time rebuilding carburetors, fuel pumps and distributors, which we use extensively. Bellows works from 8:00 A.M. to 5:00 P.M. General garage and minor repair work is done by Hayden Bowers and Alvin Kloss who work from 1:00 P.M. to 10:00 P.M. Bowers is very well informed on tires and it is his duty to keep a constant check on them at all times.







Our whole garage system is based upon records. We can supply any information about our trucks or fleet operation at a minute's notice. We feel that we have to be able to do this and here is the way we work.

First of all we start with a daily garage report. On this sheet all minor costs are recorded. This sheet shows the speedometer reading for each night, shows that the tires, oil and radiator have been checked, and by whom. Trucks are greased every 1000 miles. The speedometer reading is taken when the truck is greased and carried forward on this daily sheet. When the truck has traveled 1000 miles the mechanics can spot it immediately. This sheet also shows the time of day each truck comes in. At the end of the day this report is taken to the office where it is recapped onto one master file sheet.

For major repair jobs, a regular repair order is made out showing all parts used and itemized labor.

At the end of the period (every four weeks) all garage charges are turned in to the office and a Vehicle Cost per Mile Report is made out. This report shows: Miles traveled, cost per mile, miles per gallon gas, miles per gallon oil, tire cost for month, and repair cost for month. This sheet also shows a fleet comparison for the same period of the preceding year.

5,000 and 20,000 Mile Inspection

Since installing these two inspections in our system about a year ago, we have had only two road breakdowns. One was due to a broken fan, and the other was the result of a broken hub in the clutch plate. We have completely eliminated wheel bearing and ignition breakdowns.

Procedure of 5000 mile inspection follows: (check usually takes a half day).

Ignition check: change plugs, check points.

Fan belt, windshield wiper, lights, horn, brakes, flares, fuses, flags, governor, oil filter and fire extinguisher are checked.

An exhaust analysis is taken.

Procedure of 20,000 mile inspection: (check takes about a day and a half).

Compression test is taken. This test shows whether a valve or ring job is necessary.

Ignition: Distributor, carburetor, fuel pump, generator and spark plugs are replaced by rebuilt units. All battery connections are washed and greased.

One pint of penetrating oil is run through the engine.

Wheel bearings: All wheels are removed, and parts are washed thoroughly. Bearings are checked very closely, and replacements made if necessary.

Brakes: While wheels are off, brake linings and cylinders are checked. If new linings are necessary, the brake drums are turned. When wheels are put on, the brake fluid is drained and replaced by new.

Steering: Complete steering mechanism is checked and tightened.

Fan belt, windshield wiper, lights, horn, flares, fuses, fire extinguisher,

(Turn to Next Page, Please)

THE "Schwahn Song"

(CONTINUED FROM PAGE 31)

tools and speedometer cable are checked.

Tires are rotated.

Exhaust Analyzer

Another money saver put into use by us last year is the exhaust analyzer. When we purchased this instrument, we immediately tested every truck. Eighty per cent of the trucks were set too rich. Here is how the miles per gallon of gas read the six periods before using the analyzer:

Period No. 1—9.71; No. 2—8.99; No. 3—9.26; No. 4—9.3; No. 5—9.06; No. 6—9.95 miles per gallon.

We then made the tests and corrected adjustments with the following results:

Period No. 7—10.13; No. 8—10.75; No. 9—10.29; No. 10—10.3; No. 11—10.2; No. 12—10.08; No. 13—10.06 miles per gallon.

In 1939 this increased mileage has continued.

We consider 10 miles per gallon very good for trucks the size of ours carrying the loads required.

Oil Filters

Every truck in our fleet is equipped with two oil filters. We never change oil. Filter cartridges are changed as soon as oil becomes a little discolored. We have a chemical analysis taken from time to time, and it always shows that there is no accumulation of acids, and that the dilution is well within the safety zone. Oil filters and cartridges cost us about $5 a month. If we were to change oil every 1000 miles it would amount to about 55 changes a month or 330 quarts of oil. We believe that this is quite a saving.

Battery Book

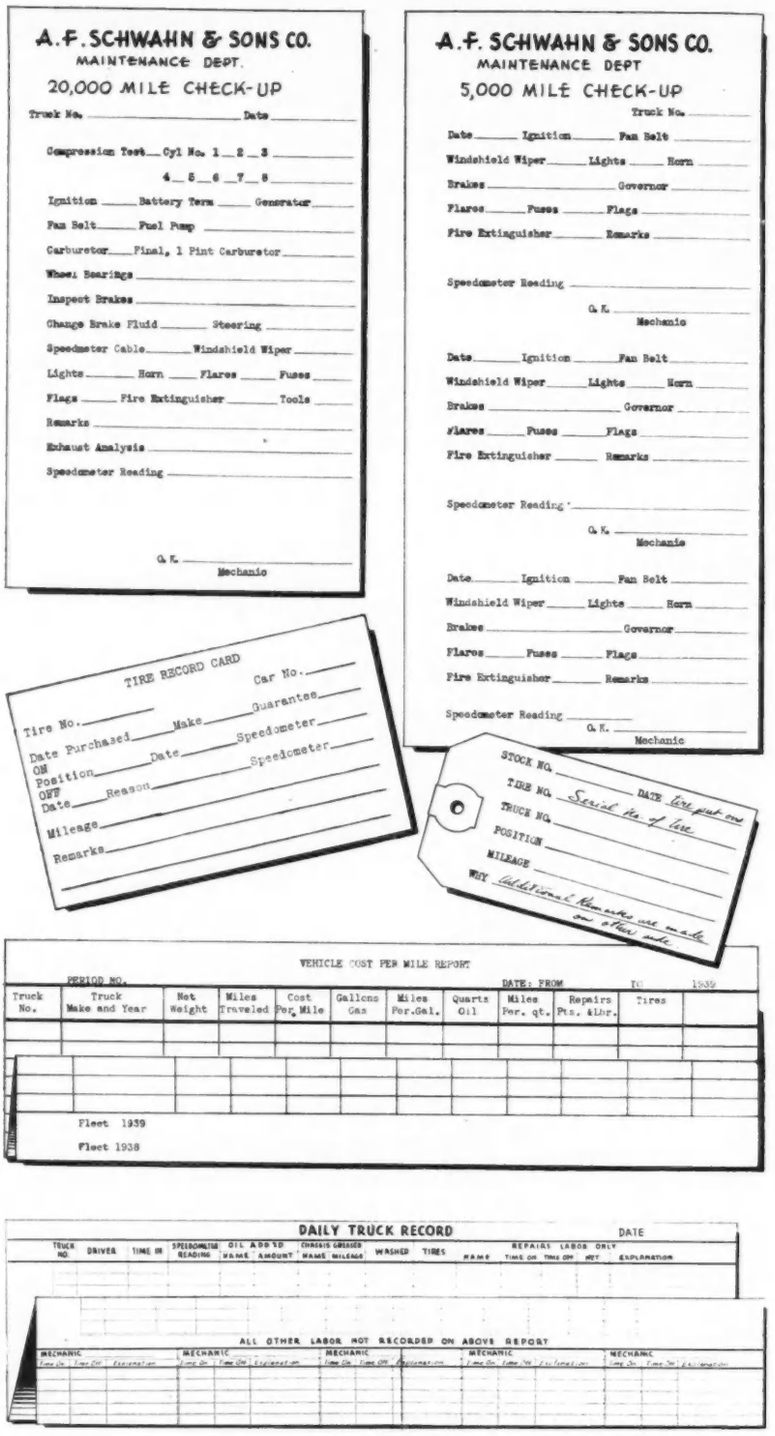
Every new battery is numbered and recorded in the battery book. When a battery goes bad, we simply refer to the number in the book, and if the proper service has not been received, we get an adjustment. In 1938 the adjustments amounted to $52.50.

Tire Records

For the past year and a half, we have been keeping a very close check on tires. Previous to that time, no accurate records had been kept, and our tire costs were very high.

When we moved into our new building and needed an extra mechanic, we hired Hayden Bowers, an experienced man on tires. The following system was adopted:

(TURN TO PAGE 88, PLEASE)



A. F. SCHWAHN & SONS CO.
MAINTENANCE DEPT.
20,000 MILE CHECK-UP

Truck No. _____ Date _____

Compression Test—Cyl No. 1 2 3 _____
4 5 6 7 8

Ignition _____ Battery Term _____ Generator _____
Fan Belt _____ Fuel Pump _____
Carburetor _____ Final, 1 Pint Carburetor _____
Wheel Bearings _____
Inspect Brakes _____
Change Brake Fluid _____ Steering _____
Speedometer Cable _____ Windshield Wiper _____
Lights _____ Horn _____ Flares _____ Fuses _____
Flags _____ Fire Extinguisher _____ Tools _____
Remarks _____
Exhaust Analysis _____
Speedometer Reading _____

O. K. _____
Mechanic

A. F. SCHWAHN & SONS CO.
MAINTENANCE DEPT
5,000 MILE CHECK-UP

Truck No. _____

Date _____ Ignition _____ Fan Belt _____
Windshield Wiper _____ Lights _____ Horn _____
Brakes _____ Governor _____
Flares _____ Fuses _____ Flags _____
Fire Extinguisher _____ Remarks _____

Speedometer Reading _____
O. K. _____
Mechanic

Date _____ Ignition _____ Fan Belt _____
Windshield Wiper _____ Lights _____ Horn _____
Brakes _____ Governor _____
Flares _____ Fuses _____ Flags _____
Fire Extinguisher _____ Remarks _____

Speedometer Reading _____
O. K. _____
Mechanic

Date _____ Ignition _____ Fan Belt _____
Windshield Wiper _____ Lights _____ Horn _____
Brakes _____ Governor _____
Flares _____ Fuses _____ Flags _____
Fire Extinguisher _____ Remarks _____

Speedometer Reading _____
O. K. _____
Mechanic

TIRE RECORD CARD

Car No. _____
Tire No. _____
Date Purchased _____ Make _____ Guarantee _____
ON Position _____ Date _____ Speedometer _____
OFF Date _____ Reason _____ Speedometer _____
Mileage _____
Remarks _____

STOCK NO. _____
TIRE NO. Serial No. of tire
DATE tire put on
TRUCK NO. _____
POSITION _____
MILEAGE _____
WHY Additional Remarks are made and other side

VEHICLE COST PER MILE REPORT

PERIOD NO. _____ DATE: FROM _____ TO _____ 1939

Truck No.	Truck Make and Year	Net Weight	Miles Traveled	Cost Per Mile	Gallons Gas	Miles Per Gal.	Quarts Oil	Miles Per. qt.	Repairs Pts. &Lbr.	Tires	

Fleet 1939
Fleet 1938

DAILY TRUCK RECORD DATE

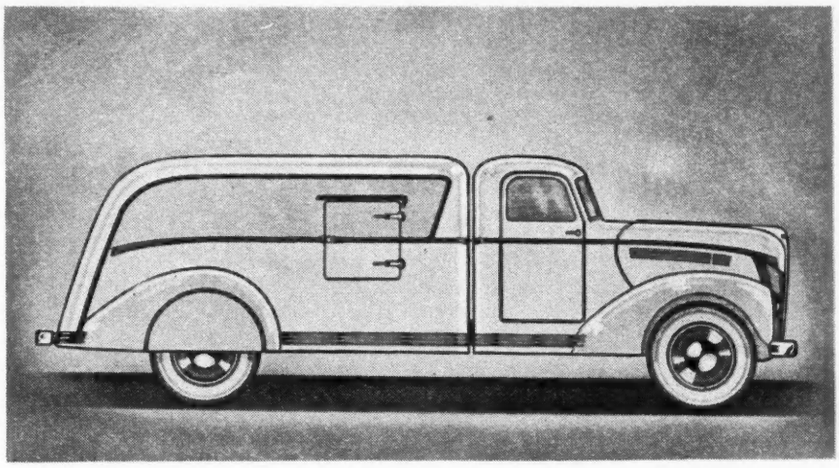
TRUCK NO.	DRIVER	TIME IN	SPEEDOMETER READING	OIL ADDED NAME	OIL ADDED AMOUNT	CHASSIS GREASED NAME	CHASSIS GREASED MILEAGE	WASHED	TIRES	REPAIRS NAME	REPAIRS TIME ON	REPAIRS TIME OFF	LABOR ONLY HRS.	LABOR ONLY EXPLANATION

ALL OTHER LABOR NOT RECORDED ON ABOVE REPORT

MECHANIC	Time In	Time Out	Explanation	MECHANIC	Time In	Time Out	Explanation	MECHANIC	Time In	Time Out	Explanation	MECHANIC	Time In	Time Out	Explanation	MECHANIC	Time In	Time Out	Explanation

Systematic inspections at 5000 and 20,000 miles have done much to reduce the Schwahn maintenance bill. Shown here are check-up forms, a card from tire record file, a tire identification tag and two fleet record forms

This is the sixteenth in Commercial Car Journal's series of original body designs. All designs are copyrighted but arrangements can be made for procuring complete construction drawings by addressing the editor. Next month a body for groceries and food products



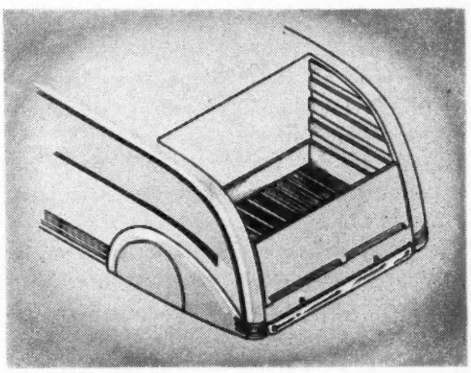
THE *Body* OF THE MONTH

PREPARED AND COPYRIGHT 1940 BY E. M. WESTBERG — DESIGN NO. 16 — AN ICE CREAM BODY

VOCATIONAL USES

Following in the same trend as several previous body of the month designs this month's design presents a special ice cream unit of dual purposes which will dovetail into any fleet and serve for ice cream delivery as well as other operations.

The design illustrated is a delivery unit with the rear portion of the body fitted out as an express body. In this manner it can be used both for the delivery of ice cream and for pick-up work such as delivery of cans of milk, advertising matter, etc. A body of this type, with its wide range of usefulness, can be kept in operation almost 24 hours a day.



DESIGN FEATURES

The body is designed with one large ice cream compartment in the forward portion of the body. On a 157 in. wheelbase chassis it would be five cans long and proportionately larger and smaller on other wheelbases. The width would be seven cans and the height four cans.

The ice cream load is reached through a three-stepped door, well gasketed and equipped with refrigerator door hardware.

The rear portion of the body is constructed as an express-type unit with or without wheelboxes. The floor and side rails are suitably reinforced with steel to protect them from the wear of heavy cabinets, etc. A small tail-gate is shown with spaceless hinges and equipped with short inside chains. In cases where it is necessary to have a cover over the rear a roll-up heavy canvas curtain could be provided.

As a suggestion to keep the lower portion of the body as clean as possible, the bottom molding has been omitted, as are the running boards of the chassis. The front chassis fenders are faired into the cab at the front of the cab door.

MATERIALS OF CONSTRUCTION

The design of this body allows the construction and insulation to follow conventional practice in ice cream work. It is suggested that hardwood

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SETTING UP A DEPRECIATION *Reserve*

An expert on accounting explains the ICC routine for truck it differs from Income Tax requirements in language that a non-

ANY BUSINESS which fails to make sufficient profit to replace its tangible assets as they wear out is not on a sound financial basis.

No business man expects to contribute, from his personal funds, money to replace assets which have become worn out in service for the business. Rather, a business man desires to regard his business as a separate entity, sufficient unto its own maintenance and existence and wholly apart from any personal fortunes. As such, a business must make enough profit for replacement of worn out assets, for expansion, and for a reasonable return on funds invested. Therefore, depreciation, as an operating expense, is a legitimate and vital element of cost.

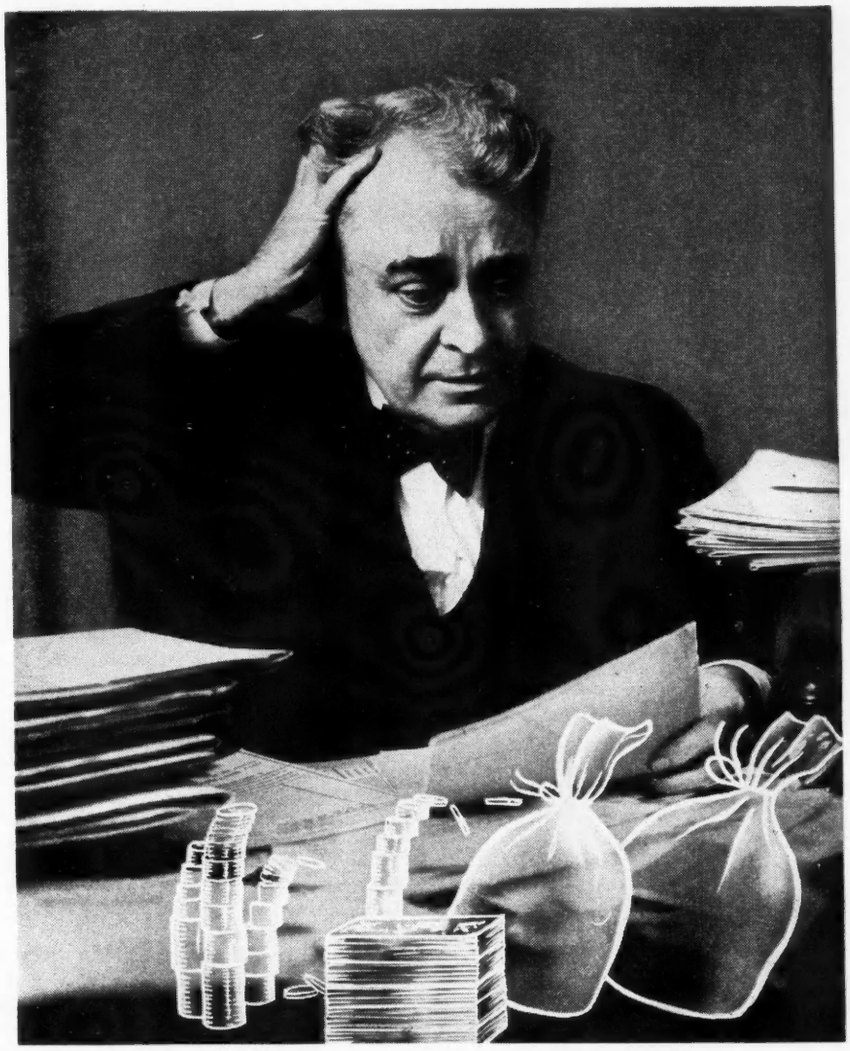
Primarily, depreciation is a *process*, but it is here considered in the technical sense as being a loss in useful value, due to use, wear, exhaustion, and the normal effect of time and exposure to the elements. It has been authoritatively defined by the Interstate Commerce Commission in its order No. 15,100, July 28, 1931, as being "loss in service value not restored by current maintenance and incurred in connection with the consumption or prospective retirement of the property in the course of service from causes against which the carrier is not protected by insurance, which are known to be in current operation, and whose effect can be forecast with a reasonable approach to accuracy."

Since depreciation expense is an allowance created by law and regulations, the basis, or starting point, of such an allowance must be in strict conformity with the applicable law. In the case of common and contract carriers by motor vehicle, and brokers, the law which controls is expressed by the Interstate Commerce Commission in its Uniform System of Accounts, prescribed for Class I carriers. Carriers having average gross operating revenues (including interstate and intrastate) of $100,000 or over annually from motor carrier operations are regarded as Class I carriers, and must maintain their books of account in accordance with the Uniform System of Accounts.

This System of Accounts provides that depreciation shall be taken on the "service value" of equipment and that it shall be spread over the "service life" of the asset. "Service value" is technically defined as being the "difference between the book cost and the net salvage value of carrier operating property." "Service life" is also defined as the "period between the date when carrier operating property is placed in service and the date of retirement."

Upon acquisition of freight revenue equipment, the cost or contract price shall be entered upon the books of account as a charge to account No. 1221, Revenue Equipment. This cost is the capital investment figure to be recovered by the depreciation allowance; hence, it is imperative that a thorough understanding be had as to what "cost" means. It is defined as being the "amount of money actually paid for property or services, or the cash value at the time of the transaction of any consideration other than money."

In acquiring any unit of revenue equipment, the "cost" shall include the first set of accessory equipment necessary to fit it for service (excluding tires and tubes), invoice or contract price of the unit, plus freight, excise taxes, insurance in transit, unloading costs and other expenses incurred in obtaining delivery upon the premises of the car-



By

J. A. POER

Accountant (Edward J. Meyers Co., General Cartage Contractors, Chicago) and Expert on Income Tax Law

depreciation and how expert can understand

rier, and the cost of any additions or attachments made after delivery. (The cost incidental to purchasing equipment on the deferred payment plan may not be included in the "cost" of the unit, but is a current business expense, chargeable, as paid, to account No. 7000.)

To illustrate the principle involved, a carrier may purchase a truck chassis, excluding tires and tubes, for $1,000, pay an additional $500 for the body, and still an additional $25 for attachments necessary for placing the unit in service, with the result that this truck would "cost" $1,525, as a basis for depreciation. Assuming, further, that this truck will have a "salvage value" of $150 at the expiration of five years, the "service value" upon which the depreciation is computed would be $1,375 ($1,525 minus $150) and an annual charge of $275 to depreciation expense, account No. 5021, would be in order; at the same time crediting a like amount to the reserve for depreciation, account No. 2521.

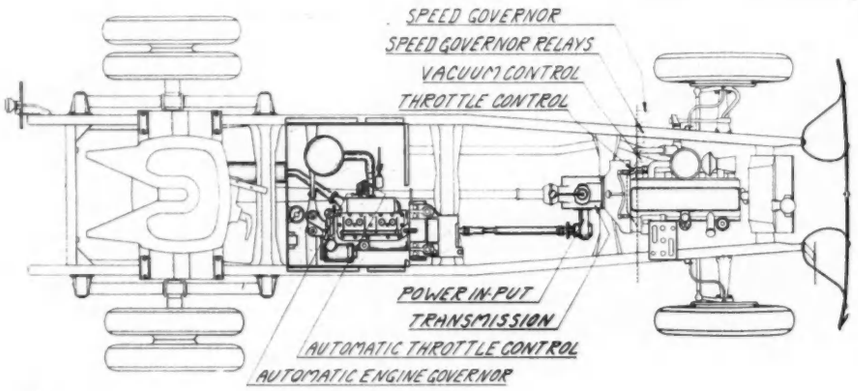
If a truck whose depreciation basis is, continuing the above example, $1,375, subjected, after a few months, or years, to an expenditure for "betterment," then that, too, is included as part of the "cost" of the unit to be properly depreciated. "Betterment" means the enlargement or improvement of existing structures, facilities. and equipment, and must be contrasted and differentiated from normal repairs, charged currently to account No. 4140, Repairs to Revenue Equipment, and to account No. 4150, Servicing of Revenue Equipment, if the carrier maintains his own repair shop.

The I. C. C. states that "betterments" are "physical changes in structure, facilities, or equipment which have as their primary end or result the making of the properties affected more useful or of greater capacity than they were at the time of their installation or acquisition. Of the changes incident to betterments the cost of such portion only as will when added to the original cost of the property bettered, give the cost of reconstruction in present condition or property bettered, should be charged as plant and equipment investment." Expenditures which come under this classification of "betterments" increase the efficiency of the unit, effected by structural change or alteration, resulting in a better truck, more durable and perhaps capable of producing greater revenue, in its bettered state. On theory, it would seem as if "betterments" may be properly includible in the property account, No. 1221, to such an extent that the total "book cost" may not exceed the cost of a new unit similar to the unit bettered.

In transactions involving "betterments," it should be kept in mind

(Turn to Page 70, Please)

CLARK POWER BOOSTER



AN automatic booster unit for 1½-ton Chevrolet trucks which employs an auxiliary engine to give added power for acceleration and hill-climbing ability has been introduced by the Clark Equipment Co., Buchanan, Mich. The unit is particularly adapted to tractor-trailer installations carrying a payload of approximately six tons and a gross weight of 23,500 lb.

A series of automatic controls is provided to bring the auxiliary engine into operation within certain predetermined speed ranges and conditions of operation, wholly without the attention of the driver.

Basic unit of the installation is a 4-cylinder Hercules engine of 133 cu. in. displacement mounted within the truck frame just back of the cab, and below the truck floor level, so that there is no interference with payload space. Maximum power output of the engine is 45 hp. at 3200 r.p.m. and 92 ft-lb. torque at 1610 r.p.m. Drive is through an overrunning clutch and short driveshaft forward to the main transmission.

The automatic controls consist of a speed governor, a vacuum governor, an accelerator switch, and an automatic throttle control for the booster engine. Using a typical example of operation, once the vehicle attains a speed of 6 m.p.h. the speed governor, operated in series with the vehicle speedometer, closes part of the auxiliary ignition system. Circuit is not closed, however, until vacuum governor is actuated by low vacuum in main engine indicating full throttle operation. At the same time an accelerator switch opens the auxiliary throttle, auxiliary engine starts automatically and throttle position is then synchronized with main engine. The auxiliary remains in effect, through all gears and up to 40 m.p.h. in high gear when it is automatically cut out. At 31 m.p.h. it is again automatically brought into use if full throttle condition exists.

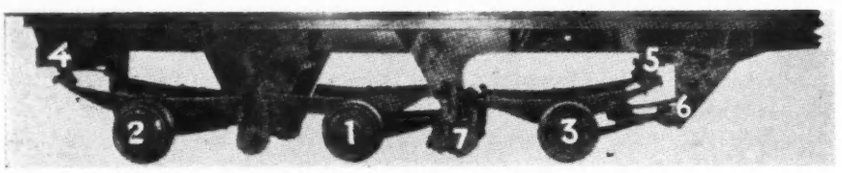
The entire auxiliary unit is locked out while truck is in first gear in order to prevent overload on standard rear-end parts. In second gear, both engines combined give less torque than main engine alone in first gear.

A larger radiator core is employed to provide sufficient cooling for both engines. Warm water from the main engine is pumped through the auxiliary at all times so that efficient operating temperature is maintained regardless of operation.

Comparison of combined torque output of both engines at various speeds and gear ratios shows an average increase of nearly 55 per cent over the main engine alone. Actual road tests are said to have shown that the Chevrolet engine alone carrying 23,500 lb. gross must resort to second gear on sustained 3 per cent grade. Under these conditions it attains a sped of 15 m.p.h. at 2300 r.p.m. The same vehicle, booster-engine equipped, remained in high gear and attained a speed of 30 m.p.h. at 1850 r.p.m. It is said that fuel requirements of the auxiliary are less than the savings effected by keeping the main engine in high gear longer under average conditions. The savings in time and the increased availability of the unit are obvious.

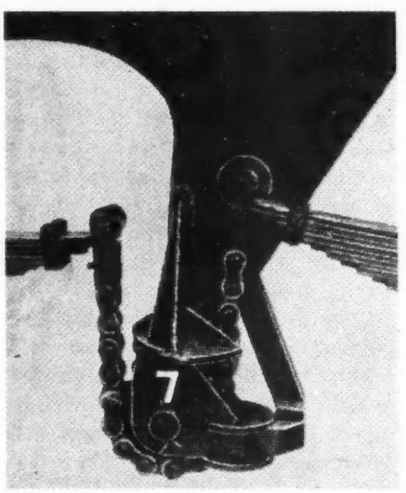
Installations will be made at the Clark plant in Buchanan.

MERRY-NEVILLE MULTI-AXLE TRAILER



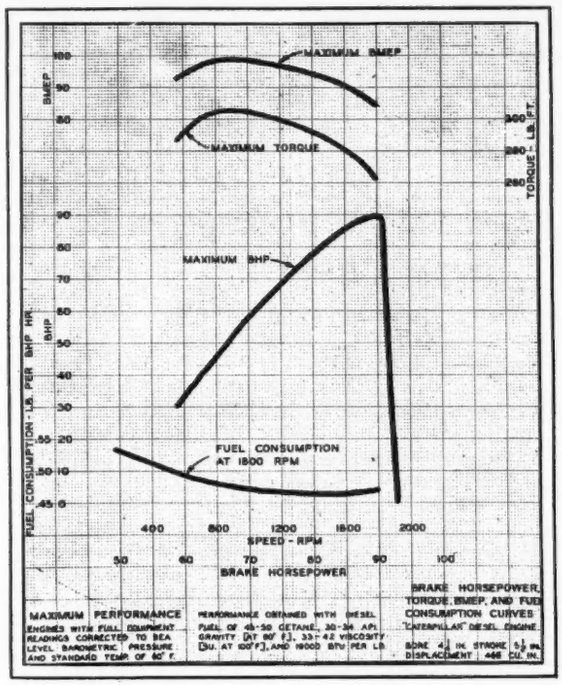
THE Merry-Neville Mfg. Co., Birmingham, Mich., has announced a series of multi-axle trailers. In the three axle model axle (1) serves as a pivot, axles (2 and 3) are free to shift laterally conforming to the radius of axle (1). This action is possible as a result of flexible connections of axles to springs and frame at (4, 5, 6, 7). The axles are connected to the frame through spacer rods which have universal couplings as at (6).

This trailer is 28 ft. long and has a turning radius as a single action trailer 7 ft. shorter since the pivot is at (1) while the conventional pivot is at (2). The chain and sprocket units provide independent suspension which gives equal weight distribution



regardless of wheel position. The chain moves over a swiveling sprocket.

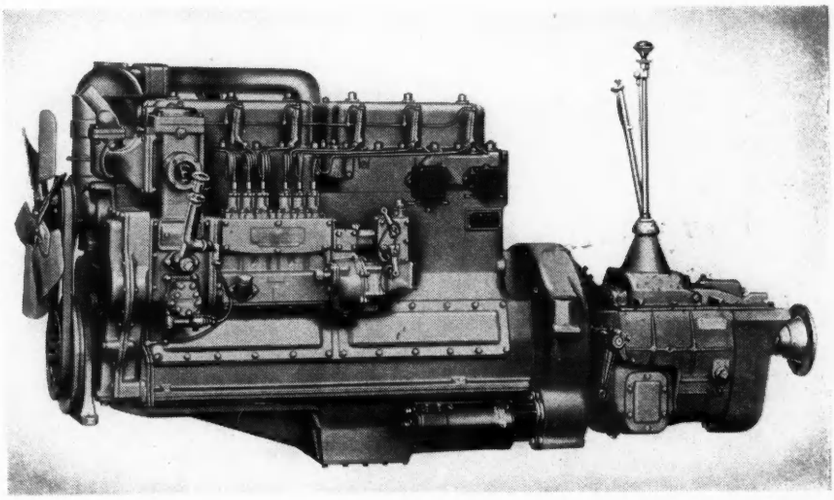
Horsepower and torque curves as well as those for b.m.e.p. and fuel consumption are shown in chart at right. Below is the injector side of engine shown with clutch and transmission assembly


MAXIMUM BMEP
MAXIMUM TORQUE
MAXIMUM BHP
FUEL CONSUMPTION AT 1800 RPM
BMEP
TORQUE - LB. FT.
FUEL CONSUMPTION - LB. PER BHP HR.
SPEED - RPM
BRAKE HORSEPOWER
MAXIMUM PERFORMANCE
ENGINES WITH FULL EQUIPMENT READINGS CORRECTED TO SEA LEVEL BAROMETRIC PRESSURE AND STANDARD TEMP OF 60° F.
PERFORMANCE OBTAINED WITH DIESEL FUEL OF 45-50 CETANE, 30-34 API GRAVITY [AT 60° F.], 33-42 VISCOSITY [SU. AT 100°F.], AND 19000 BTU PER LB.
BRAKE HORSEPOWER, TORQUE, BMEP, AND FUEL CONSUMPTION CURVES "CATERPILLAR" DIESEL ENGINE
BORE 4¼ IN. STROKE 5½ IN. DISPLACEMENT 468 CU. IN.

CATERPILLAR

TRUCK DIESEL

90-horsepower, 468-cu.-in. truck engine is first Caterpillar entry in automotive field



THE CATERPILLAR TRACTOR CO., Peoria, Ill., has announced a new 90 hp. diesel truck engine. For replacement purposes the engine, Model D468, is offered as a complete unit, equipped with a 5-speed Spicer 5351 transmission and clutch.

The engine is a six-cylinder, four-cycle, valve-in-head, water-cooled unit with a bore of 4¼ in. and a stroke of 5½ in. giving 468 cu. in. of piston displacement. Maximum horsepower is developed at 1800 r.p.m. Maximum torque is 305 lb. ft. at 900 r.p.m. The torque at maximum horsepower is 262 lb.

The maximum governed speed is 1925 r.p.m. and low idle is governed between 450 and 500 r.p.m.

Fuel is injected into precombustion chambers. All fuel pumps and valves are set at the factory and require no adjustment.

Pistons are of aluminum alloy. The cylinder head, block and the crankcase unit are of cast alloy iron. Water circulation is by pump with the operating temperature controlled by a thermostat. An air-cooled lubricating oil cooler is provided.

There are seven main bearings with a total surface of 118 sq. in. Connecting rod bearings are of 2⅝-in. diameter and are 1⅞ in. long. All bearings are of the precision type. There is a crankshaft vibration dampener. Lubrication is by pressure to all main bearings and connecting bearings, piston pins, camshaft bearings, valve operating mechanism and timing gears.

The electrical system includes a 24-volt starter and a 12-volt, 400-watt generator. An oil pressure signal light is provided which lights on the instrument panel when pressure drops below 10 lb.

The weight of the engine without liquids is 2120 lb. The cooling system, exclusive of radiator, has a capacity of 7¼ gal. The capacity of the oil system is 4¼ gal.

Showcase OF NEW PRODUCTS

New Fifth Wheel Line

A complete line of fifth wheels featuring designs for special uses as well as an all-purpose type has been announced by American Steel Foundries, East Chicago, Ind. Features common to all models include jaws which utilize the complete area of the king pin, gravity-type lock, rubber cushions in front and back of the jaws and pressure grease fittings.

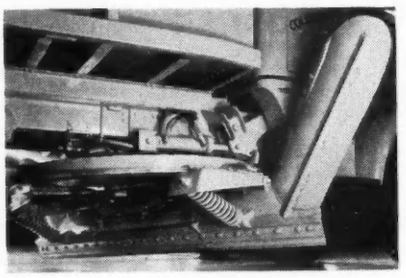
The 36-in. all-purpose wheel (lower illustration) permits coupling with all popular full automatic trailers. This is accomplished by the use of special adapters. (A Lapeer adapter is shown in place.) This wheel will also couple with all semi-automatic trailers.

The 30-in. side oscillating wheel (upper illustration) is designed to operate under especially heavy loads over rough terrain such as oil fields and in logging and mining operations. A third model consists of a 30-in. tilting type wheel with adjustable brackets to permit mounting over side rails, and featuring unusually strong channel type supports.

FWD Center Scraper Plow

A new center scraper plow has just been announced by the Four Wheel Auto Drive Co., Clintonville, Wis., featuring a new principle in construction whereby the entire plow unit is carried on sprung weight. This improvement increases the speed at which the plow may be operated and also protects the mechanism against unnecessary and excessive road shock.

Cutting pressure is maintained by two hydraulic rams, one on each side of the truck frame, connected through a toggle arrangement which allows for movement to compensate for an obstruction that might not be cleared by the automatic tripping device. The operation of the hydraulic rams may be arranged through bi-valves, providing equalized hydrostatic pressure to each ram or varied at the will of the driver.

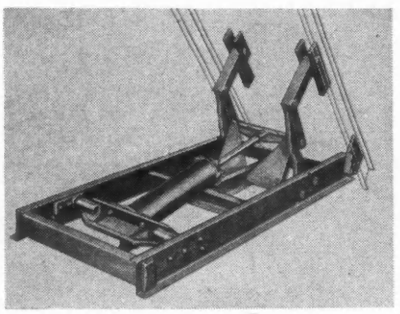


Variable Pitch Fan

An entirely new type of truck fan featuring variable-pitch blades, automatically controlled by a water thermostat has been introduced by Kontrol-Fan, Inc., 55 W. Green St., Pasadena, Cal. Designed to replace existing equipment and complete with its own thermostat, the unit is said to save considerable power otherwise expended on the fan since blades pump air only when needed for cooling. A photograph of the unit appears on page 28.

Anthony Adds to Line

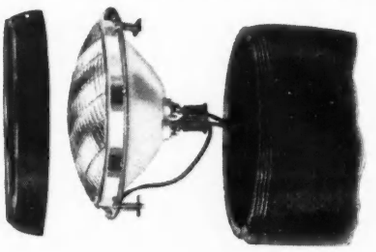
Latest addition to the line of "Low Loading Height" hydraulic hoists produced by the Anthony Co., Streator, Ill., is a double-arm type which features a "Balanced" valve, enabling the hoist to be operated by a button control on the dash. The lift point is well forward and centralized under the load. During the entire dumping operation the arms lift vertically to the bottom of the body.



Sealed Beam Replacement

A sealed beam headlight replacement unit for specified models of older trucks and passenger car has been introduced by Arrow Safety Device Co., Medford, N. J. The kit consists of all parts needed including adapter rings, wire leads and light units to fit the following models:

International, 1936-1940; G.M.C., 1937-1939; Federal, 1939-1940; Diamond T, 1936-1940 (except package delivery); White models 500, 700, 700H, 703, 704, 708, 710, 718, 750, 750T, 720, 720T, 722 (will not fit c.o.e. or White Horse units). Also recent General Motors passenger cars, and some Packard models.

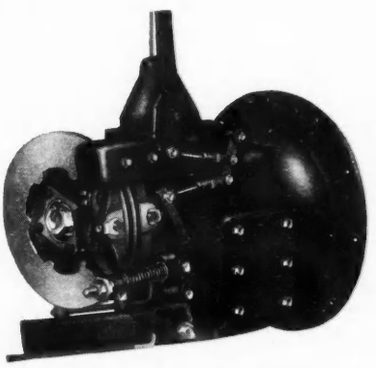


An auxiliary kit, available shortly, will supply a pair of parking lights for mounting directly on the headlights, and designed to take the place of parking lights previously mounted inside the headlamp.

Tru-Stop Brake for Fords

A new Tru-Stop heavy-duty emergency brake of the ventilated disc type, mounted directly on the drive shaft, has been introduced by the American Cable Division of the American Chain & Cable Co., Detroit, for use on all 1940 Ford trucks.

It consists of a drop-forged steel disc mounted on a universal joint flange which is part of the drive line or propeller shaft.



It revolves with the propeller shaft when the vehicle is in motion. The disc is actually ventilated, drawing cool air from its center, which flows past the inner side of the friction surfaces and is expelled at the outer rim, thus keeping the disc and linings cool.

New Haynes Hard-Facing Rod

A new alloy welding rod for hard-surfacing wearing parts where severe abrasion, with only a moderate amount of impact, is encountered, has been announced by the Haynes Stellite Co., unit of the Union Carbide and Carbon Corp., New York.

MORE NEW PRODUCTS ON PAGE 40

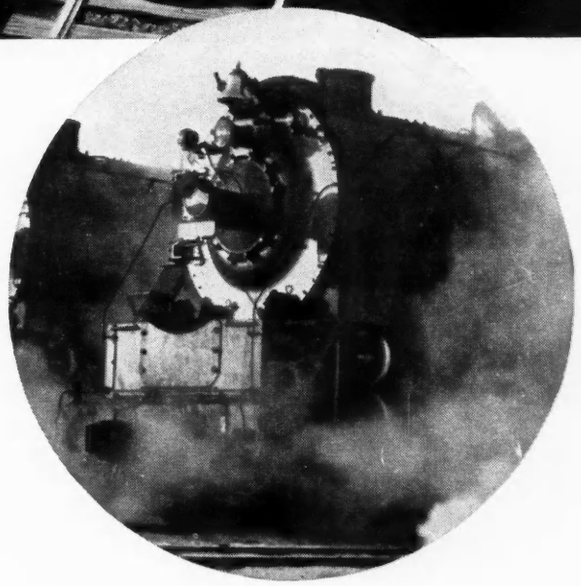
Now is the profitable time to promote a **brief pause for** *Modernization*

BENDIX B-K Power Brakes were a vast step ahead in truck security, even before the many improvements were made in this great system. But traffic has been changing too. It's thicker and faster—more people are walking and driving. Every truck driver *needs* the full safeguarding efficiency of *modernized* Bendix B-K Power Brakes.

Bendix has made this very simple and easy. Special charts covering every type and combination of such equipment have been prepared. These enable the B-K service man to analyze any fleet, truck by truck, trailer by trailer, and quickly figure the precise B-K parts and units needed to bring each job "up to snuff."

Naturally, he'll make money—a reasonable legitimate profit on the merchandise and his labor. The truck operator will benefit, the driver will benefit, and the public will benefit.

Join Bendix in this "brief pause for modernization!"



BENDIX PRODUCTS DIVISION
of Bendix Aviation Corporation
South Bend, Indiana

BENDIX
Controlled Vacuum

BK POWER BRAKING A BENDIX PRODUCT

POWER BRAKING

When writing to advertisers please mention Commercial Car Journal

NEW PRODUCTS

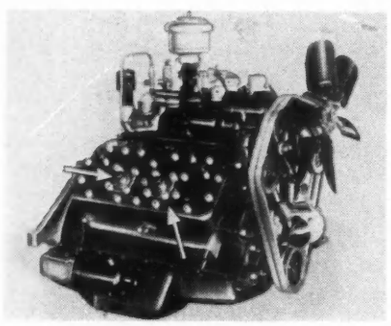
(CONTINUED FROM PAGE 38)

K-D Auxiliary Lamp

A new K-D auxiliary and adverse weather lamp, Model 870, features a patented reflector constructed with a series of flutes in the reflecting surface and which requires no prismatic lens. The plain convex lens is treated with a special coloring. Tested by the S.A.E. and approved by all states. K-D Lamp Co., Cincinnati.

Engine Air Compressor Unit

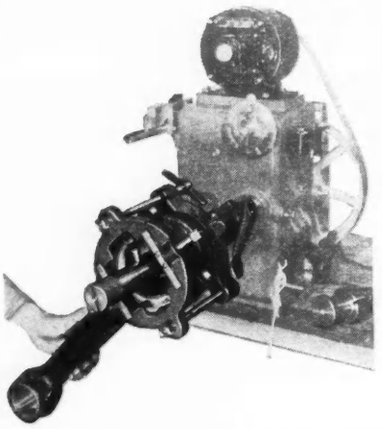
To meet a demand for small, easily-driven, industrial air compressors Schramm, Inc., West Chester, Pa., is offering a Ford engine adaption which combines engine and compressor in one. Using special cylinder heads and other equipment, but retaining 96 per cent of the Ford parts, the unit uses two cylinders on each bank for power and two as air compressors. The unit is assembled at the Schramm factory and offered as a complete replacement package for standard Ford truck engines.



When operating the truck the four power cylinders drive through the standard Ford clutch and transmission with compressor cylinders shut off. By manipulating controls in the cab, the unit may be converted to an air compressor without so much as stopping the engine. The unit delivers 55 cu. ft. of air per minute at 100 lb. pressure.

Sunnen Bearing Sizer

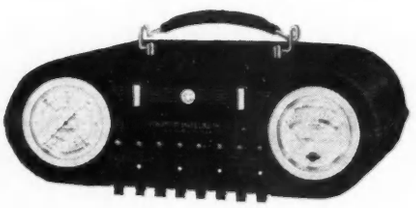
A new con rod bearing sizer which is said to quickly and accurately bore any size bearing insert up to 4-in. in length and 3½-in. in diameter has been announced by the Sunnen Products Co., 7917 Manchester Ave., St. Louis, Mo. Bearing inserts can be bored either in or out of the rod but boring in the rod saves time and produces greater accuracy. According to the Sunnen Co., it is only necessary to



stock semi-finished bearings in .030 and .060 under sizes which can be bored to any size desired. The sizer is designed for use with the Sunnen bushing grinder.

Warner Motor Analyzer

A new type of portable motor analyzer has been announced by the Warner-Patterson Co., 920 S. Michigan Ave., Chicago. The Warner Triplex Gage of the instrument checks compression, vacuum and fuel



pump pressures. A dual range D.C. voltmeter at the right is calibrated 0-3 and 0-15 volts. Incorporated with the circuit is a new Warner Coil Calorimeter.

Eight cylinder control switches are used for cutting cylinders in and out. Above the switches are observation windows for checking spark plugs on sensitized tubes back of the windows.

Tru-Lay Control for Carburetor

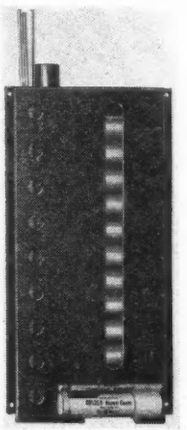
To overcome difficulties involved in connecting accelerator pedal with carburetor in cab-over-engine installations, American Cable Division of American Chain & Cable Co., Detroit, has developed a flexible control of the push-pull type for this particular service. The control unit consists of a preformed inner member which slides within a flexible conduit built especially to withstand vibration and engine movements without movement of the control. There is also a universal line of Tru-Lay controls in ⅛-in., 3/16-in and ¼-in. sizes.

Hydraulic Brake Equalizer

Schutte Electric Co., Pittsburgh, Pa., is offering a hydraulic equalizing unit designed for all 1937-1938 Ford passenger and commercial cars. The unit replaces the original cross-chaft assembly and is said to provide equalization of all brakes.

Nested 5-Minute Fusees

A new fusee especially designed for use during short stops and having a burning time of five minutes, is announced by the Bolser Corp., Cedar Falls, Ia. A particular advantage of the new line lies in the fact that additional units may be nested to give a continuous burning time of any desired length. A new service kit (illustrated) is available consisting of 12 fusees mounted in an automatic feed holder, two ICC-approved flags with rust proof holders and a carrying case. The unit sells for $2.30 list.



Welding Timer

Ability to positively control welding time to a half cycle of current on any resistance welder is said to be provided by a new weld timer just announced by Weltronic Corp., 2832 E. Grand Blvd., Detroit. Built as a separate unit the timer may be adapted to virtually any standard resistance welding machine.

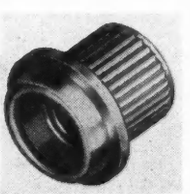
The new timer provides a full positive half-cycle in order to permit use of the highest heat in the shortest possible time. Known as "Model 90-1" the timer is available in 220 to 550 voltages with frequencies of 25, 50 and 60 cycles. Amperage range of 150 to 600 is also available.

Use of "split-cycle" timing heretofore has been restricted to complete new welding machines having the half-cycle timer feature as an integral part of the welding machine.

In addition to "split-cycle" timing, the new unit is said to reduce operating costs for equipment to which it is applied. It consists, essentially, of only two moving parts (the relays) in addition to one electronic and one rectifier tube, all of which are panel mounted and enclosed in a hinged-cover case. Interesting is the fact that the relay closes on the minus half cycle permitting the timer to fire on the positive half cycle.

Stop Nut Line Expands

The Elastic Stop Nut Corp. of Elizabeth, N. J., announces the expansion of its line to include nine new types of nuts, designated as thin hexagonal, spline, internal wrenching, countersunk and counterbored one-lug anchor and two-lug anchor, countersunk corner anchor, bracket anchor, floating right-angle anchor, and floating basket anchor. They all include the self-locking element.



MORE NEW PRODUCTS ON PAGE 42

A BETTER BATTERY THAT COSTS NO MORE AND CUTS YOUR COST PER MILE

THE finest battery you can buy is likely to be the cheapest in the end . . . few fleet operators will disagree with that statement. But many may think that such a battery is bound to cost considerably more at the start, going far to offset its later economy.

But here is a new line of Exides that in one important way are finer batteries than any Exides ever before built for heavy-duty truck service. They deliver an average of 25% longer life. Yet they cost no more. They assure you substantially lower battery cost per mile at no premium in price!

Exide
HEAVY-DUTY
TRUCK BATTERIES

This is made possible by a remarkable new Exide development... plates of such vastly improved design that they step up the life of these batteries by an average of 25%. The advantages to the user cannot all be measured in terms of dollars and cents. For these new plates increase still further the solid dependability for which Exides are famous. That means even greater protection against tie-ups and delays, plus closer adherence to schedules, and time saved in the shop as well as on the road.

The new line includes Exide types XH-131, XH-152, XH-173, and XH-194. Why not see your Exide Wholesaler today, or write to us?

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

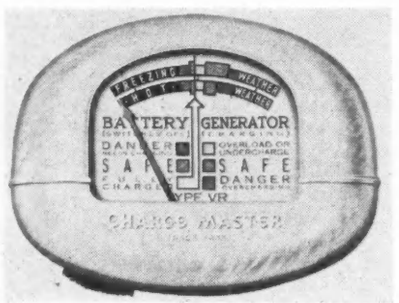
When writing to advertisers please mention Commercial Car Journal

NEW PRODUCTS

(CONTINUED FROM PAGE 40)

Anderson Battery Indicator

A battery condition indicator, known as the "Charge-Master", is a recent addition to the line of the Anderson Co., Gary, Ind. The new instrument indicates to the driver and service man the state of charge of the battery when at rest. When the generator is charging, the instrument shows any



variation in battery charge, in generator performance and in load on the electrical line. It indicates overcharge as well as undercharge.

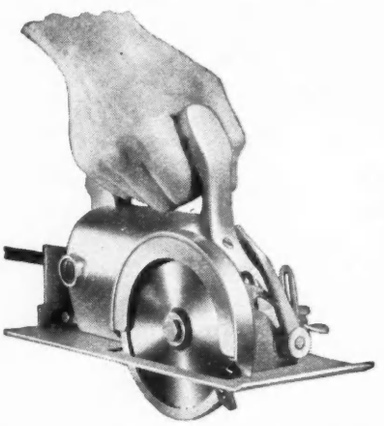
The instrument is easily and quickly installed on the dash panel of any car or truck. The regular stock model fits all 6-volt systems.

Aluminum Tinning Compound

A new tinning compound, for aluminum which makes it readily susceptible to tin-lead solder spraying, has been put on the market by the Glaser Lead Co., Brooklyn, N. Y. After the surface to be tinned has been prepared in the usual way, a clean rag, moistened with water, is dipped into the compound and rubbed over the surface until a shiny metal coating is formed. This coating is claimed to form a permanent bond with the tin-lead solder which may then be sprayed on.

Electric Saw is Portable

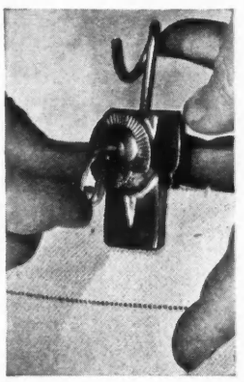
A new portable electric saw known as the GuildCutter has been introduced by the Syracuse GuildTool Co., Syracuse, N. Y. Designed to cut material up to 1¼-in. thick, the tool is equipped with a 4½-in. blade. The saw arbor also provides for the use of a ¼-in. width Dado head for ploughing, grooving, tennoning



and dadoing. As the base is fully adjustable, any depth cut up to full capacity may be made. A telescope type guard protects the blade at any angle. Frame is cast aluminum alloy with a high polish finnish; total weight of 7 lb.

New Canvas Fastener

A new fastener for holding down large areas of canvas without the use of the familiar brass grommet is offered by Hersey & Co., Inc., Seattle, Wash. The Alligator canvas grip is made of special non-corrosive aluminum alloy and is very simple in



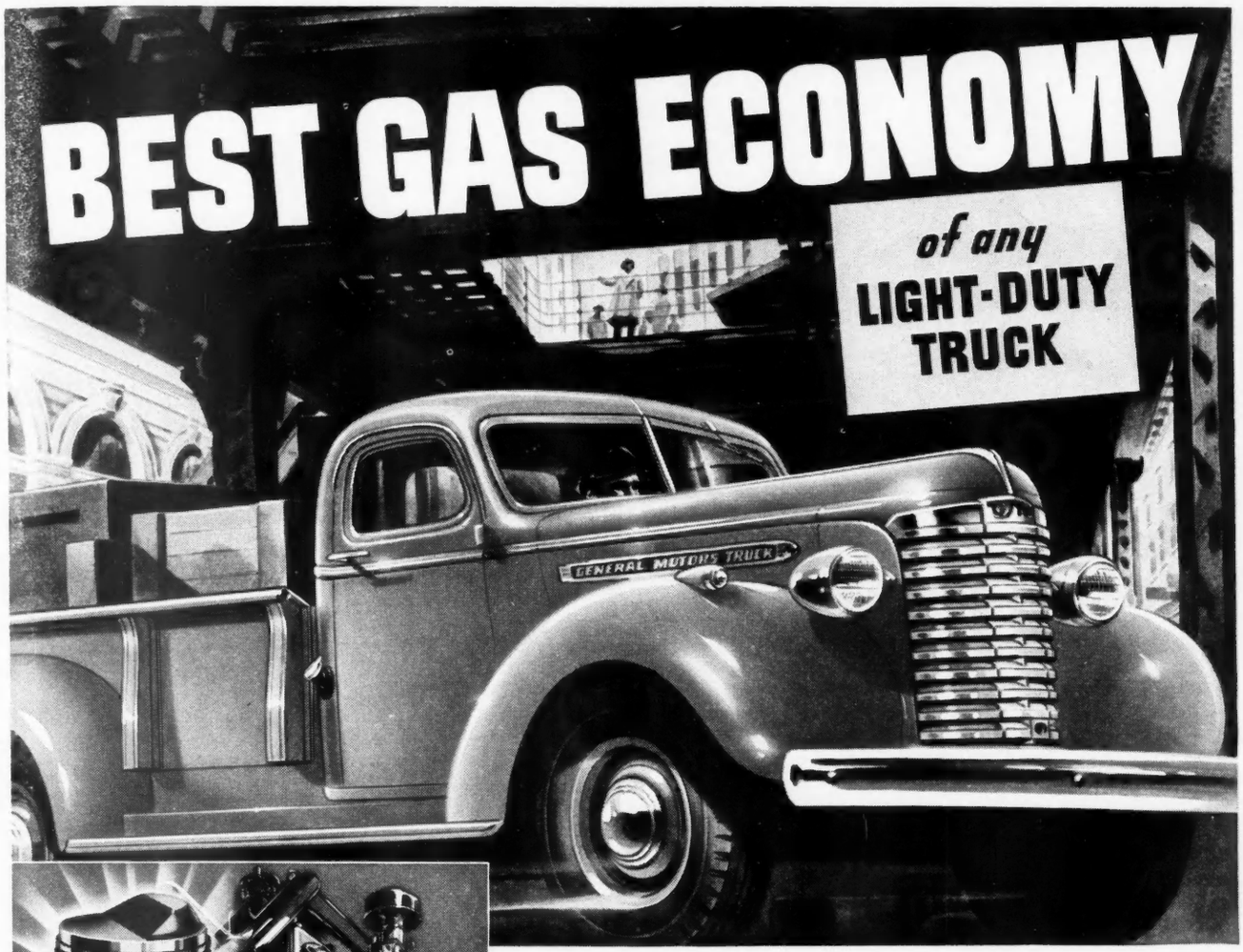
construction. A quick twist brings the jaws together or opens them. There is a self-aligning hook at the base. An added advantage is the fact that the new grips can be used to steady the unsupported middle of large areas of canvas.

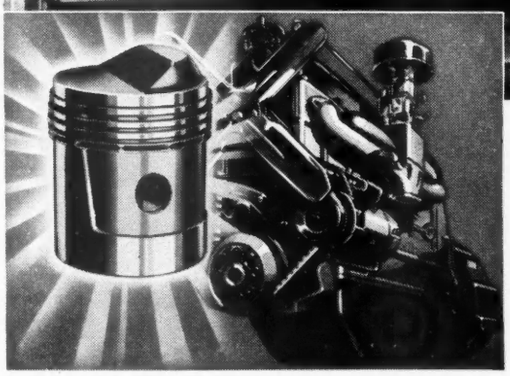
Steel Straps Reduce Handling

By joining several containers for one consignee into a single unit, handling and labor charges may be reduced considerably. Simply operated tools for doing the job with steel strapping are available from Acme Steel Co., 2840 Archer Ave., Chicago. A 24-page booklet on steel strapping has been prepared and will be sent upon request.

New Truck Registrations by Makes by Months

	Auto-car	Brock-way	Chev-rolet	Diam-ond T	Dodge	Fed-eral	Ford	G.M.C.	Hud-son	Inter-nat'l	Mack	Ply-mouth	Reo	Ster-ling	Stude-baker	White Indiana	Willys	Misc.	Total
January.....1939	143	127	13,615	378	4,002	85	10,188	2,384	47	4,709	482	507	168	25	169	348	135	293	37,715
January.....1938	130	64	10,338	357	3,145	118	9,304	1,777	103	4,581	257	691	217	16	161	301	206	229	31,995
February.....1939	134	98	12,007	308	3,821	79	9,224	2,218	44	4,284	398	510	159	29	143	275	97	274	34,102
February.....1938	96	57	9,174	350	2,677	110	7,863	1,424	81	3,847	223	587	184	9	147	319	142	261	27,551
March.....1939	150	168	16,565	392	4,852	122	11,886	2,772	39	5,507	483	879	175	17	190	373	148	365	45,083
March.....1938	110	86	12,598	395	3,752	138	10,175	2,010	79	5,382	357	798	291	17	163	388	178	338	37,255
April.....1939	149	139	16,386	515	4,688	137	11,631	3,170	53	5,617	547	1,014	106	24	172	421	141	291	45,201
April.....1938	119	127	11,824	421	3,618	130	9,437	1,898	79	4,850	370	766	263	26	184	356	175	391	35,034
May.....1939	184	177	15,899	427	5,185	173	11,706	3,215	44	5,359	666	1,118	78	45	196	442	166	301	45,361
May.....1938	193	159	10,918	378	3,252	95	9,117	1,853	68	4,372	383	678	291	25	224	366	172	393	32,937
June.....1939	162	177	14,049	408	4,442	123	10,606	2,740	47	5,105	588	889	53	25	209	446	185	228	40,482
June.....1938	235	116	10,034	340	3,095	97	8,510	1,762	67	4,136	321	692	224	21	159	313	197	328	30,647
July.....1939	300	170	15,432	436	4,562	116	12,514	2,872	43	5,744	541	946	31	28	229	379	133	271	44,747
July.....1938	129	99	11,225	382	3,236	117	9,425	1,675	67	4,782	347	660	264	34	116	337	182	398	33,475
August.....1939	185	146	14,327	449	4,709	158	12,090	3,031	28	6,101	524	793	28	38	238	377	92	209	43,523
August.....1938	88	111	11,268	397	3,286	125	9,471	1,909	61	5,361	370	593	231	23	209	289	158	281	34,231
September.....1939	191	157	9,132	496	4,169	159	7,288	3,091	11	6,297	556	439	18	23	165	497	99	195	32,983
September.....1938	129	123	6,577	318	2,285	135	8,296	1,513	28	5,296	353	391	252	19	167	303	143	242	26,570
October.....1939	183	181	13,091	570	3,244	251	7,694	3,188	10	7,136	774	515	20	26	162	464	145	269	37,923
October.....1938	135	135	3,828	419	1,564	100	4,966	1,306	26	5,104	512	306	285	19	162	317	140	265	19,589
November.....1939	157	154	14,879	522	2,448	217	12,312	3,383	5	5,160	599	364	8	28	150	417	162	321	41,286
November.....1938	147	124	9,333	349	1,088	101	5,725	1,211	31	4,088	490	176	229	26	141	336	103	245	23,943
Eleven Months....1939	1,938	1,694	155,744	4,904	46,189	1,635	117,357	32,137	371	61,115	6,162	7,985	845	308	2,024	4,444	1,460	2,976	449,288
Eleven Months....1938	1,511	1,201	107,354	4,106	31,058	1,272	92,450	18,383	691	51,904	3,983	6,346	2,732	235	1,836	3,640	1,771	3,402	333,875
% Change Eleven Mos.	+28	+41	+45	+19	+49	+28	+27	+75	−46	+18	+55	+26	−69	+31	+10	+22	−18	−13	+35





GMC *Factory-Built* SUPER-DUTY Engines *Outpull, Outperform, Outsave All Others*

Here's the only truck engine with POWER-PAK Pistons and the exclusive GMC combustion chamber that gets more power out of every drop of fuel. It's a *100% truck-built* engine of the more efficient valve-in-head design — with full-pressure lubrication, honed cylinders, harmonic balancer, and many other extra-value features.

ONLY GMC GIVES ALL THIS EXTRA VALUE

SUPER-DUTY Engines • POWER-PAK Pistons RIDER-EASE Cabs • QUICK-VISION Instrument Panels • FRICTION-FREE Steering • TOP-SIZE factory-built Bodies • SEALED-BEAM Headlamps • SYNCRO-MESH Transmissions standard or available in light, medium and heavy capacities.

• THE TRUCK OF VALUE •

GMC Dealers will PROVE it with the MILEAGE METER

GMC owners report gas savings of 15% to 40% *over all comparable trucks.* And now, GMC dealers' Mileage Meter tests show you, before you buy, how much *you* can save *on gas alone* with *SUPER-DUTY powered* General Motors Trucks.

See this convincing PROOF of GMC's unrivaled gas economy. Then see how much value GMC gives you in *every* way at prices right down with the very lowest.

You'll find unexcelled driver comfort in GMC RIDER-EASE Cabs. You'll like the substantial "feel" and alert performance of a GMC. You'll be amazed when you see how much more *quality* GMC engineering gives you in every detail.

See—compare—test a GMC before you buy another truck.

CHECK GMC PRICES
Against the 3 Lowest!

Our own YMAC Time Payment Plan assures you of lowest available rates

GMC TRUCKS

GASOLINE DIESEL

When writing to advertisers please mention Commercial Car Journal

Newscast

BART RAWSON COMMENTATOR

1939 Sales Up 40 Per Cent

Few will deny that 1939 was a good year for the automotive industry. Factory sales of motor vehicles in the U. S. and Canada during 1939 totaled 3,710,000, a gain of 40 per cent over 1938, according to preliminary estimates from the Automobile Manufacturers Association. Commercial vehicles accounted for 750,000 units and total registration of commercial units in the U. S. increased to 4,460,000. With industrial indices pointing to a continuation of business activities, most estimates for the coming year predict a further increase in production of 10 to 15 per cent over 1939.

Arthur Nutt Heads S.A.E.

At its annual dinner on Jan. 16, the Society of Automotive Engineers announced the election of Arthur Nutt, Wright Aeronautical Corp., as president for the current year. Gavin W. Laurie, Atlantic Refining Co., was named vice-president representing Transportation and Maintenance, and B. Frank Jones, White Motor Co., is vice-president representing Truck, Bus & Rail Car activities.

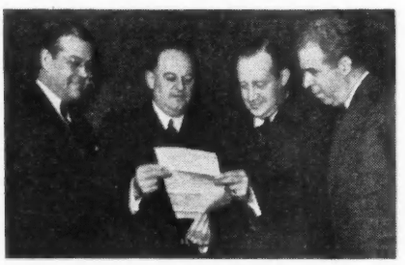
S.A.E. T & M Meeting, March 28-29

The National Transportation & Maintenance Meeting of the Society of Automotive Engineers has been scheduled for March 28-29 at the Mellon Institute Auditorium, Pittsburgh, Pa. The S.A.E. annual summer meeting will be held at White Sulphur Springs, W. Va., June 9 to 14.

$156,000,000 for Highway Aid

The new Federal Works Agency, which now has jurisdiction over the Federal-aid highway system, has apportioned among the 48 states, the District of Columbia, Hawaii and Puerto Rico, $156,000,000 for highway improvement and elimination of railroad grade-crossing hazards.

As in former years, the highway funds were apportioned among the states in proportion to population, area, and mileage of rural post roads. Grade-crossing funds were apportioned, one-half on the basis of population, one-fourth on the basis of mileage of the Federal-aid system, and one-fourth according to railroad mileage.



Record-breaking truck sales were cause for recent jubilation among Chevrolet's top sales executives. Shown, left to right, are Felix Doran, Jr., asst. gen. sales mgr.; W. E. Holler, gen. sales mgr.; W. E. Fish, truck sales mgr., and T. H. Keating, asst. gen. sales mgr.

Transfer Co. Is Common Carrier

A three-truck fleet, operating a pick-up service in Pittsburg, Kan., for three line haul carriers, occupied the center of the ICC limelight recently when the commission decided that Dick's Transfer & Truck Terminal was a common carrier operation. Unimportant in itself, the decision is expected to be far reaching in its effect on similar operations throughout the country. The decision reversed an earlier ruling by the ICC's own Motor Carrier Division.

Railway Express Under Carrier Act

Hot on the heels of the Dick's Transfer decision comes word from the ICC Motor Carrier Division that the Railway Express Agency, long the recipient of special rights pending decision of its case, is now subject to all provisions of the Motor Carrier Act, in so far as over-the-road operations are concerned. Pick-up and delivery service performed for rail carriers remains under Part I, the rail section of the Interstate Commerce Act.

The original Fruehauf trailer, vintage 1915, was pulled by a "Model T", but demonstrated soundness of trailer as commercial vehicle

The modern Fruehauf Aerovan is 25th anniversary model; demonstrates company progress during first quarter-century of existence

TRUCK PRODUCTION
(United States and Canada)

	1939	1938	Per Cent Change
January	64,081	58,062	+ 10.5
February	63,603	51,464	+ 24.0
March	77,097	52,106	+ 48.0
April	68,063	47,818	+ 42.3
May	63,759	41,575	+ 53.4
June	66,946	41,857	+ 60.0
July	62,628	38,336	+ 63.5
August	40,891	35,259	+ 16.0
September	27,553	20,174	+ 36.8
October	63,407	22,380	+215.0
November	75,060	54,639	+ 37.1
11 Months	673,088	463,669	+ 45.2

Fruehauf Offers Stainless Steel Units

Fruehauf Trailer Co. has announced a new line of stainless steel trailers fabricated by the Budd "Shotweld" process. A deal recently consummated between Fruehauf and the Edw. G. Budd Mfg. Co. provides for final assembly at Fruehauf plants using the Budd welding process. The new trailers take advantage of the same lightweight skin-stressed design proved in millions of miles of passenger car train service. The steel formula calls for 18 per cent chromium and 8 per cent nickel.

Utah Diesel Tax Unconstitutional

Important to the Diesel advocates is news of a Utah Supreme Court decision which held that a mileage tax upon vehicles "using motor fuel other than gasoline" is unconstitutional. In part the decision said. "A distinction is made upon a basis of the fuel used in the engine . . . . an obvious departure from any thought of wear and tear upon the road."

Reo Names Personnel

Naming of directors and officers, changing of the firm name to Reo Motors, Inc., and filing of articles of incorporation with the Michigan Corporations and Securities Commission early in January completed reorganization procedure of the former Reo Motor Car Co. and cleared the decks for operations which will permit the company to engage actively in the production of motor trucks and buses. New directors, named by the three-man voting trust, were approved by Arthur F. Lederle, judge of the U. S. District Court, who approved the reorganization plan which had been in litigation for approximately a year.

Directors on the new seven-man board are: Col. Fred Glover, Detroit, who served as general manager of the company during the reorganization period; Andrew W. Langenbacher, Lansing, president and general manager of Duplex Truck Co.; Edward VerLinden, Detroit, formerly associated with Oldsmobile and at one time its president; Hugo Lundberg, Lansing, president of Lundberg Screw Products Co.; A. I. Philp, Detroit, at one time associated with Durant Motors in Lansing; J. W. Milford, Lansing, president of Melling Forging Co. and the Bank of Lansing; and Otto C. Seyferth, who is the representative of the three-man voting trust on the board.

Colonel Glover was named president and general manager of the new company at

(Turn to Page 46, Please)

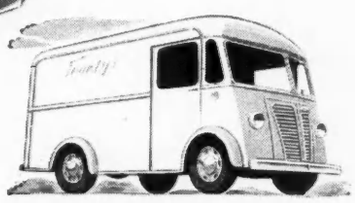
FEDERAL TRUCKS

SERVE "The Pause that Refreshes"

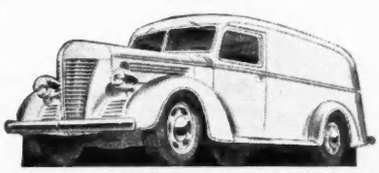
ANOTHER REPEAT ORDER CUSTOMER—
53 Federals in 10 Years!

THE Detroit Coca-Cola Bottling Company has bought 53 Federals since 1929! This leading bottler bought one Federal—its first—ten years ago. Every year since it has come back for more—adding from one to twelve new Federals to its fleet. An impressive—and typical—record that proves customer satisfaction through millions of miles of hard service.

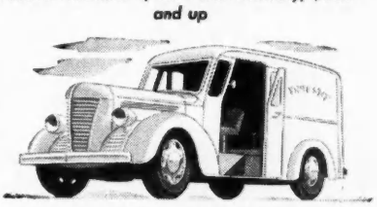
To *all types* of business Federal offers a complete line for every trucking purpose—from ¾- up to 8-ton. Every one is "All-Truck", for Federal has built trucks *exclusively* for thirty years. Check with your Federal dealer the next time you need new equipment. You'll find the exact model for your requirements, with top ability to handle tough jobs and maximum loads; with top dependability, low first cost and low operating cost. And the Federal has long been called "the *handsomest* truck on the road."



*Federal Standard ¾-Ton Package Delivery, $1095**



Federal Standard ¾-Ton Panel Delivery, $865 and up*



*Federal Standard ¾-Ton Milk Delivery, $995**

Dealers find that it pays to sell Federals. Some desirable territories are now open.

FOR THIRTY YEARS
Known In Every Country—Sold On Every Continent
FEDERAL MOTOR TRUCK COMPANY
DETROIT, MICHIGAN

The Federal ¾-ton Standard Milk Delivery, as illustrated above, $995, (4 or 6-cylinder engine). ¾-ton chassis only — **$595**

*Prices f. o. b. Detroit, all taxes extra

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(CONTINUED FROM PAGE 44)

the first meeting of the directors in Lansing on Jan. 3. Other officers are: Theodore I. Fry, trustee of the company during the reorganization period, vice-president; W. C. Wood, secretary-treasurer; and R. F. McKim, assistant secretary-treasurer; F. L. Brooks, credit manager; Frank N. Morgan, general sales manager; D. C. Streeter, assistant general sales manager; John T. Clark, export sales manager; S. E. Heydenfeldt, service manager; A. W. Zimmer, factory manager; R. K. Jack, chief engineer and Glenn Tooker, assistant chief engineer.

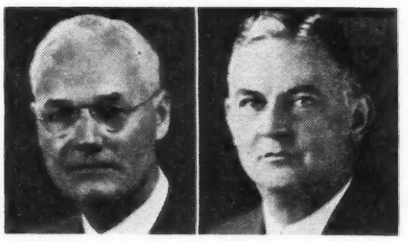
The company will maintain two wholly owned subsidiaries, Reo Motor Co. of Canada, Ltd., Toronto, and Reo Motors Ltd., Brentford, England. Fifteen factory branches will be maintained located at Atlanta, Boston, Chicago, Dallas, Denver, Detroit, Kansas City, Lansing, Los Angeles, Milwaukee, New York, Philadelphia, Pittsburgh, San Francisco and St. Louis.

Getting Personal

Judging by the number of shifts in personnel reported during the past month, many a man in the industry seems to have celebrated the new year with a promotion or otherwise changed his affiliations.

From General Motors comes word that Felix Doran, former assistant general sales manager of Chevrolet, is the general sales manager of the fleet sales division of General Motors Corp. He succeeds C. E. Dawson, inactive because of ill health.

Studebaker has named George E. Engelmann, John J. Wrenn and George E. Hammel as special representatives in the national accounts division under the direction of C. H. Wondries.



Electric Storage Battery Co. has named R. C. Norberg (left) president of the company succeeding John R. Williams, retired. Frank T. Kalas (right), Exide general sales manager, has been selected as third vice-president

American Chain & Cable Co. has promoted William D. Kirkpatrick general sales manager of American Chain division, to a vice-presidency. C. N. Johns, a vice-president, has been placed in charge of operations taking over duties of C. G. Williams, resigned. George C. Moon, also a vice-president, has been appointed general sales manager.

Aben E. Johnson, for many years vice-president and general manager of the Hastings Mfg. Co., has been elected president and treasurer of the company. Harold P. Phillips has been named first vice-president; Hal R. Keeling, vice-president; C. W. Dolan, secretary and Don A. Seigel, assistant treasurer. In addition to officers, the board of directors includes H. D. Cook and C. W. Crawford.

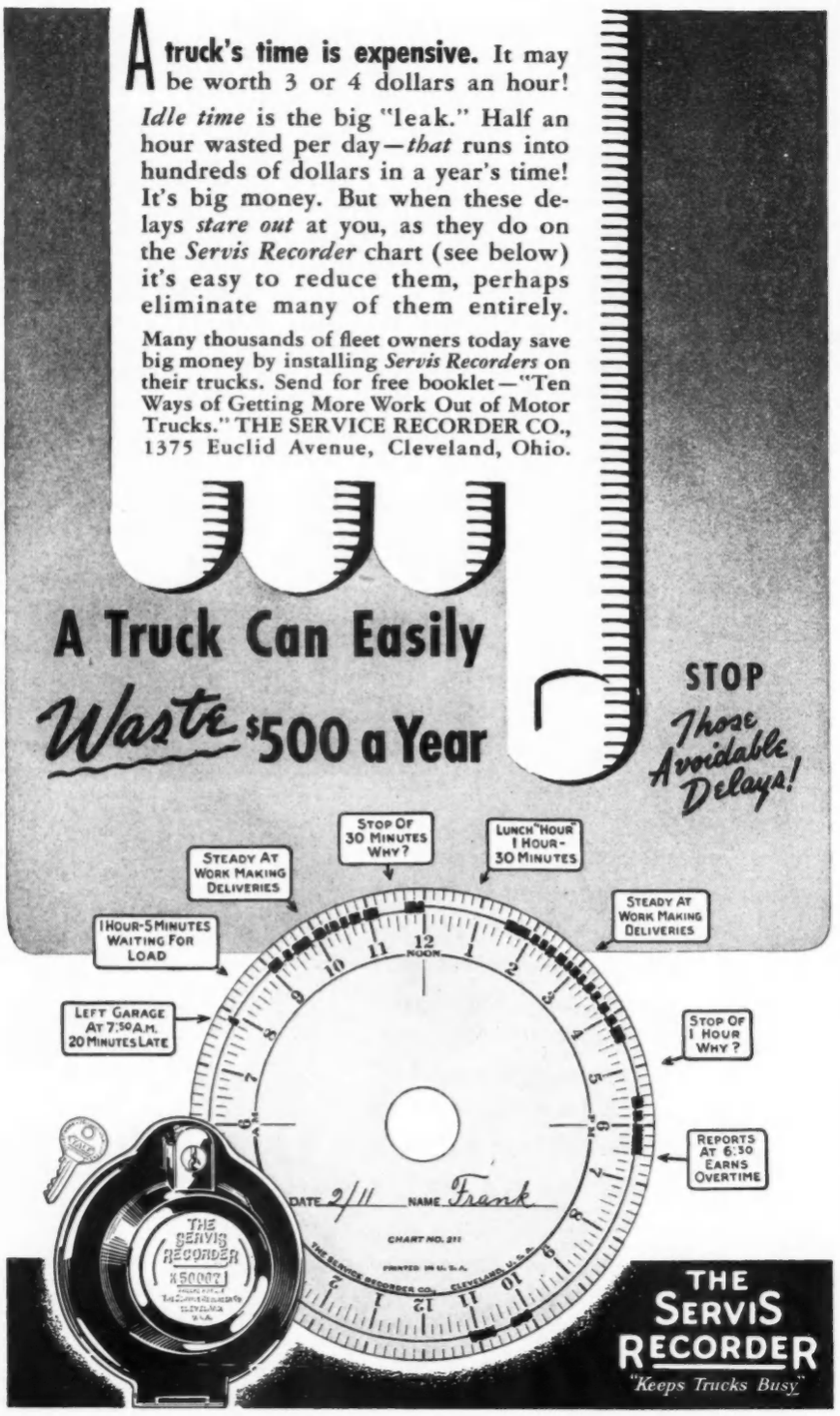
Paul G. Hoffman of Studebaker has been made chairman of the Highways Committee of the Automobile Manufacturers Association. B. C. Budd of Packard now heads the export committee.

T. L. Baumgartner, newly appointed zone sales manager for the West Coast plant, Trailer Co. of America. His headquarters are in Oakland

John R. Emerson, formerly assistant chief engineer, has been named chief engineer, Marvel-Schebler Carburetor Division, Borg Warner Corp.

National Carbon Co. announces the appointment of R. P. Bergan and H. M. Warren as assistant sales managers. J. M. Meldram is now manager of the Advertising and Sales Promotion Division, while A. H. Housman and H. A. MacMullan are assistant managers of that division.

Changes in Fruehauf Trailer Co. sales personnel include the following appointments: S. E. Oplinger, national accounts,


A truck's time is expensive. It may be worth 3 or 4 dollars an hour!
Idle time is the big "leak." Half an hour wasted per day—that runs into hundreds of dollars in a year's time! It's big money. But when these delays stare out at you, as they do on the Servis Recorder chart (see below) it's easy to reduce them, perhaps eliminate many of them entirely.
Many thousands of fleet owners today save big money by installing Servis Recorders on their trucks. Send for free booklet—"Ten Ways of Getting More Work Out of Motor Trucks." THE SERVICE RECORDER CO., 1375 Euclid Avenue, Cleveland, Ohio.
A Truck Can Easily Waste $500 a Year
STOP Those Avoidable Delays!
STOP OF 30 MINUTES WHY?
LUNCH "HOUR" 1 HOUR-30 MINUTES
STEADY AT WORK MAKING DELIVERIES
STEADY AT WORK MAKING DELIVERIES
1 HOUR-5 MINUTES WAITING FOR LOAD
LEFT GARAGE AT 7:30 A.M. 20 MINUTES LATE
STOP OF 1 HOUR WHY?
REPORTS AT 6:30 EARNS OVERTIME
DATE 2/11 NAME Frank
CHART NO. 211
THE SERVIS RECORDER
"Keeps Trucks Busy"

Newark; W. J. Robinson, manager Newark office; R. J. MacEwan, manager Columbus branch; Morton Miller, manager Norfolk branch; R. B. Hollingsworth, manager Richmond branch; E. W. Cheney, manager Tulsa Oklahoma branch, and Howard Cedargreen, manager Hartford, Conn., branch.

Harold R. Swanton has been named vice-president of Precision Bearings, Inc., West Coast subsidiary of Norma-Hoffman Bearings Corp.

Edson Smith, for two years proclaimed World's Champion Truck Driver, has been placed in charge of the express division. Kirk Transportation Co.

Herbert Acason heads an expanded sales organization for Production Equipment Co., Los Angeles Buda engine distributor. Increased effort in the automotive field is expected.

(More News on Page 109)

Free books

BOOKLETS PAMPHLETS CATALOGS

. . . a special selection made by the editors . . . to get your copy, just check the letter on the post card between pages 112 and 113 which corresponds with the item you desire and mail to Commercial Car Journal, Philadelphia.

Hercules Motors Corp. has a new 16-page booklet on Deisel engines arranged in "question and answer" form. A concise yet comprehensive explanation of modern high-speed Deisels. Check "A" on the post card.

A chart of codes and record systems published by Keel & Co, Philadelphia, shows how to keep simple but accurate records of tire purchases, recaps retreads, regrooves, adjustments, etc. Useful and free to fleetmen. Check "B" on the post card.

Marmon-Herrington Catalog. Complete specifications and deseriptions of all wheel drive Ford conversions. Check "C" on the post card.

Weed Chain Fleet Owner Catalog, published by American Chain & Cable Co. Complete line-up of prices and specifications including dual-pneumatic chains. Check "D" on the post card.

The 1940 edition of the New Departure ball bearing interchangeability tables is available in booklet form. Identified as Booklet R Check "E" on the post card.

E. Edelman & Co. has a new catalog (30-D) on its complete line of Hydraulic Brake Parts. 64 pages including complete specifications for trucks and passenger cars. Check "F" on the post card.

South Bend Lathe Works' Catalog No. 50 gives complete details of its 9-in. "workshop" lathes. 48 pages. Worthwhile for lathe enthusiasts. Check "G" on the post card.

A new 62-page catalog from Black & Decker gives full details of the company's 1940 line of portable electric tools. Check "H" on the post card.

A new catalog from Johnson Bronze Co. lists 850 stock sizes of company's "Leadaloyl" self-lubricating bearings. Check "I" on the post card.

Thompson Tune-Up Manual

A new 900-page manual of repair and tune-up operations on trucks, buses, tractors, and Deisel engines as well as passenger cars from 1935 to 1940 has been prepared by Thompson Products, Inc. Over 400 pages are devoted exclusively to heavy-duty units. List price $20.; available free to fleetmen from Thompson distributors in exchange for specified parts orders.

Raybestos Brake Service Guide

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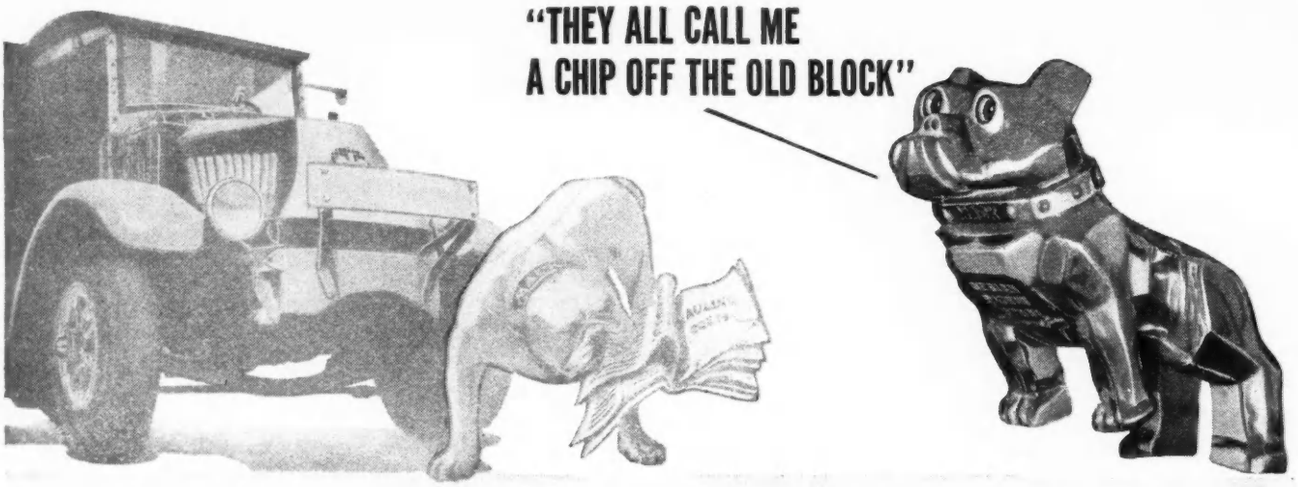

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"NO WORRIES" WITH *Mack*...

There's a *new* kind of "light" truck today! A *Mack*—ruggedly constructed from bumper to tail-light to give the kind of dependable, money-saving service that made the old "Bulldog" Macks the most famous trucks in the world.

Before you buy *any* truck at *any* price, see these new Macks, which bring "heavy-duty" economy to the light-weight truck field. Mack prices start at $675.00 for standard chassis f.o.b. Allentown, Pa. Cab, body and taxes extra.

MACK TRUCKS, INC. NEW YORK, N. Y.

...says McFARLAND AND STAMPLE TRUCKING CO.

* "Prior to 1938, we were using several different makes of trucks in this delivery work with considerable annoyance and cost from breakdowns and failures.

"In 1938, we placed into service fourteen of the Model EE Macks, and as a result of the service rendered, we placed into service an additional four in 1939...We feel that at last we have discovered a dependable delivery truck that will go out and do the work at a minimum cost with no worries . . .

"As for appearance, there is no fleet of trucks . . . that looks and performs as well as this."

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THE MOST COMPLETE LINE OF TRUCKS IN THE WORLD—
1 TO 30 TONS AND ALL "HEAVY-DUTY"!

COMMERCIAL CAR JOURNAL'S

TRUCK SPECIFICATIONS TABLE of DOMESTIC TRUCK MODELS

BROUGHT UP TO DATE IN THIS ISSUE FROM DATA SUPPLIED BY TRUCK MANUFACTURERS

NOTE: This Table is open to Truck Manufacturers who will supply data accurately, completely and in conformity with the definitions of column headings

KEY TO DEFINITIONS, ABBREVIATIONS AND REFERENCES

DEFINITIONS

MAKE AND MODEL
Only Domestic Truck Models are listed in this Table.

OPTIONAL UNITS
For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are yet considered standard stock truck models.

CHASSIS LIST PRICE
The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

GROSS VEHICLE WEIGHT FOR NORMAL SERVICE
Gross vehicle weights specified are based on normal operating conditions, which permits the manufacturer either to increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Gross vehicle weights given are based upon the Maximum Authorized Tire Size listed.

CHASSIS WEIGHT
The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as the conventional chassis types.

STANDARD TIRE SIZE
The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE
The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood except where otherwise noted.

MINIMUM STANDARD WHEELBASE
The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE
The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis manufacturer.

MAXIMUM BRAKE HP.
Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE
Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS
Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
(C)—Converted Ford or Chevrolet model, identifiable by engine make listed.
(d)—Intended for dump or tractor service only.
(D)—Diesel-engine equipped.
e.b.s.—Engine-between-seat design.
e.u.s.—Engine-under-seat design.
(N)—Not available as a tractor.
(T)—Specifically designed for tractor use only.
(1) Autocar—Larger service brake areas on rear axles are provided when tires of 24" base are supplied.
(2) Autocar—Price does not include auxiliary axle. Chassis weight includes auxiliary axle complete; area of brake lining and drum area do not include auxiliary rear axle.
(3) Available—All models available in c.o.e. design.
(4) Chevrolet—Governor set not to exceed 45 M.P.H.
(5) Condor—These models available with double drop bus frames.
(6) Federal—263 cu. in. engine and 11" clutch available on Models 15 and 75. 404 cu. in. and 428 cu. in. engines available on Model 40. 428 cu. in. engine available on Models 50 and 50H. Oversize or two-speed rear axles available on Models 15, 18, 20, 25, 29, 29H, 40, 75, 80, 85, 89 and 89H. Double reduction rear axles available on Models 20, 25, 29, 29H, 40, 80, 85, 89 and 89H. Two or three-speed auxiliary transmissions available on all models. All above equipment furnished at extra cost.
(7) Federal—Models 29H and 89H when furnished with fishplates, radius rods and 9.75/20 tires are known as 29XH and 89XH and have gross rating of 25,000 lbs.
(9) Gramm—Models 31, 41, 46, 56, 71, 76, 86 and 96 both gasoline and diesel available with double drop bus frames of various wheelbases. 221 cu. in. engine available on Model 21. 263 cu. in. engine available on Models 31 and 41. 282 cu. in. engine and 5 speed transmission available on Models 41, 46, and 56. 320 cu. in. engine and 5 speed transmission available on Models 41, 46, 56, and 71. 404 cu. in. engine and larger 5 speed transmission available on Model 86. Oversize two speed and double reduction axles available on Models 21, 31, 41, 46, 56, 71, 76 and 86 both gasoline and diesel. All other equipment furnished at extra cost.
(10) Corbitt—Wheelbases optional—any wheelbase desired furnished at chassis price listed.
(11) International Harvester—By "Normal operating conditions" (see definition of Gross Vehicle Weight for Normal Service) is meant operation on comparatively level terrain, over roads with a tractive resistance value of from 25 to 30 pounds per ton of gross vehicle weight and at controlled and uniform speeds within a range of not to exceed 45 m.p.h.
(14) Reo—Also available with four speed transmission and bevel gear rear axle.
(15) Sterling—Available with double reduction rear axle.
(16) Sterling—Diesel powered unit of comparable capacity available in addition to gasoline models.
(18) Willys—Advertised list price less Federal tax. Cab Pick-up $525; Cab Stake $545; Panel Delivery $799. Prices, complete with shock absorbers and front and rear bumpers. Standard tires 5.50/16—4 ply; Panel Delivery 6.00/16—4 ply; 6.00/16S—6 ply—optional.

Key to Abbreviations

MAKES—ALL

B—Bendix.
BL—Brown-Lipe.
Bu or Bud—Buda.
Cat—Caterpillar.
Cl or Cla—Clark.
C or Chev—Chevrolet.
Co—Covert.
Con—Continental.
Col—Columbia.
Cum—Cummins-Diesel.
Eat—Eaton.
Fu—Fuller.
F—Ford.
Her—Hercules.
L—Lockheed.
LO—Lockheed front, Own rear.
LW—Lockheed front, Wisconsin rear.
Lyc—Lycoming.
N.P.—New Process.
O or Ow—Own.
Op or Opt—Optional.
Sal—Salisbury.
Shu—Shuler.
Spi—Spicer.
T or Tim—Timken.
TO—Timken front, Own rear.
TW—Timken-Wisconsin.
TWH—Timken Wisconsin Herrington.
WG—Warner Gear.
WH—Wisconsin Herrington.
W-Hes—Waukesha Hesselman.
Wau—Waukesha.
W or Wis—Wisconsin.
WO—Wagner front, Own rear.
Ws—Westinghouse.

BRAKES—SERVICE

Location

2—Two Wheels, rear only.
4—Four Wheels, front and rear.
4r—Four Wheels, rear only.
6—Six Wheels, front and rear.

Type

I—Internal.
X—External.

Operation

A—Air.
D—Hydraulic and mechanical.
H—Hydraulic.
M—Mechanical.
V—Vacuum.

BRAKES—HAND

Location

C—Center of double propeller shaft.
2—Rear wheels.
2/4—Two-wheel brakes effective on all four wheels through driveshaft.
4—Four wheels.
6—Six wheels.
J—Jackshaft.
T—Transmission.
F—Driveshaft.
P—Propeller shaft.

Type

D—Tru-Stop disk.
I—Internal.
X—External.

BRAKE DRUMS

Material

a—Cast alloy iron.
A—American Car Foundry.
c—Cast iron.
C—Centrifuse.
Cl—Copper iron.
D—Dayton.
E—Ermalite.
F—Furnace iron.
G—Gunite.
N—Nickel iron.
p—Pressed steel.
P—Pressed steel.
s—Cast steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

FRAME

Type

I—"I" Beam.
C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center
Tf—Tapered front.
X—x-Braced.

GOVERNOR STANDARD

Y—Yes.
N—No.

REAR AXLE

Final Drive and Type

B—Bevel.
C—Chain.
D—Dead.
F—Full-floating.
Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
½—Semi-floating.
¾—Three-quarter floating.

Gear Ratios

(*) Ratios other than standard at extra cost.
(**) Only one ratio.

Drive and Torque

A—Radius Rods and Torque Arm.
H—Hotchkiss (springs).
R—Radius Rods.
T—Torque Arm.
U—Torque Tube.

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group.
4R—Forward and rear units of Rear Axle Group.
4F—Front Axle and Forward unit of Rear Axle Group.
4FR—Front Axle and Rear unit of Rear Axle Group.
6—All wheels.

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Sp'ds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operat'n	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
♦ 1	Autocar(1) C-10	1250	139	179	13500	4790	6.50/20D	8.25/20	Her JXB	6–3⅝x4¼	263	5.8	184	73–2300	7–2½x10 H	Y	Cla 185F	4	Tim 54412	SF	H	5.83–6.8	Tim 31013	L4IHV	308	470	c	TD	62½	8x2¾x¼	T
♦ 2	.....(D) DC-10	2550	139	179	13500	4925	6.50/20D	8.25/20	Her DJXB	6–3½x4½	260	15.	178	77–2600	7–3x10	Y	Cla 185F	4	Tim 54412	SF	H	5.83–6.8	Tim 31013	L4IHV	308	470	c	TD	62½	8x2¾x¼	T
♦ 3	.....C-20	1625	139	179	16000	5150	6.50/20D	9.00/20	Her JXC	6–3¾x4¼	282	5.8	197	78–2300	7–2½x10 H	Y	Cla 200VO	5	Tim 56410	SF	H	6.16–7.4	Tim 31015	L4IHV	358	578	c	TD	62½	8x2¾x¼	T
♦ 4	.....(D) DC-20	2925	139	179	16000	5285	6.50/20D	9.00/20	Her DJXC	6–3¾x4½	298	15.	208	83–2600	7–3x10	Y	Cla 200VO	5	Tim 56410	SF	H	6.16–7.4	Tim 31015	L4IHV	358	578	c	TD	62½	8x2¾x¼	T
♦ 5	.....C-30	2150	142	200	18500	6410	7.00/20D	9.00/20	Own 315	6–3¾x4¾	315	5.5	220	81–2400	7–3x12⅝	Y	Cla 200VO	5	Tim 56400	SF	H	6.16–7.4	Tim 32502	L4IHV	402	659	c	TD	62	9x3x¼	T
♦ 6	.....(N) C-40	2850	164	200	20000	6890	8.25/20D	9.00/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own RC	5	Own RC	2F	H	6.49–7.89	Tim 32502	LO4IDV	466	694	c	2I	84	9x3x¼	T
♦ 7	.....(T) C-40-T	3000	142	164	32000	7060	8.25/20D	9.75/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own RL5	5	Own DB	2F	H	6.49–7.13	Tim 32502	LO4IDV	466	694	c	2I	62	9x3x¼	T
♦ 8	.....(d) C-40-D	3100	148	164	20000	7290	8.25/20D	9.00/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own RL5	5	Own DB	2F	H	6.49–7.13	Tim 35000	LO4IDV	466	694	c	2I	74	9x3x¼	T
♦ 9	.....(N) C-50	3125	164	200	25000	7175	9.00/20D	9.75/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own RL5	5	Own DB	2F	H	6.49–7.13	Tim 35000	LO4IDV	466	694	c	2I	84	9x3x¼	T
♦ 10	.....(d) C-50-D	3325	154	164	22000	7810	9.00/20D	9.75/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Fu 5A43	5	Own TF	2F	H	7.85–8.57	Tim 35000	LO4IDV	567	831	c	2I	74	9x3x¼	T
♦ 11	.....(N) C-60	3600	164	200	26000	8190	9.00/20D	9.75/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own DF5	5	Own DB	2F	H	6.49–7.89	Tim 35000	LO4IDV	466	694	c	2I	84	9x3x¼	T
♦ 12	.....(T) C-60-T	4100	148	164	36000	8240	9.00/20D	9.75/20	Own 408	6–4 1/16x5¼	408	5.5	295	110–2400	7–3½x13.76	Y	Own DF5	5	Own TF	2F	H	7.20–8.57	Tim 32502	LO4IDV	567	831	c	2I	68	9x3x¼	T
♦ 13	.....(N) C-70	4500	148	200	28000	8750	9.75/20D	10.50/20	Own 408	6–4 1/16x5¼	408	5.5	295	110–2400	7–3½x13.76	Y	Own DF5	5	Own TF	2F	H	7.20–8.57	Tim 35100	LO4IDV	580	930	c	FD	84	9x3x¼	T
♦ 14	.....(T) C-70-T	4600	148	164	40000	8330	9.00/20D	10.50/20	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Own DF5	5	Own TF	2F	H	7.20–8.57	Tim 32502	LO4IDV	567	831	c	FD	68	9x3x¼	T
♦ 15	.....(N) C-80	5100	164	200	30000	9770	10.50/20D	10.50/24	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Own TF5	5	Own TG	2F	H	7.20–8.68	Tim 35100	LO4IDV	580	930	c	FD	84	10⅛x3x¼	T
♦ 16	.....(T) C-80-T	4900	148	164	45000	9300	9.75/20D	10.50/24	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Own TF5	5	Own TG	2F	H	7.20–8.68	Tim 35000	LO4IDV	567	831	c	FD	68	9x3x¼	T
♦ 17	.....(d) C-80-D	5750	170	170	30000	10060	10.50/20D	10.50/24	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Ow TF4:A3	12	Own CGA	2F	H	7.69–8.52	Tim 26452	LO4IDV	580	930	c	FD	90	10½x3x A	T
♦ 18	.....(N) C-90	5850	182	200	36000	10520	10.50/20D	11.25/20	Own 501	6–4½x5¼	501	5.5	375	127–2300	7–3½x13.76	Y	Own TF5	5	Own TG	2F	H	7.20–8.68	Tim 26452	TO4IA	631	930	c	FD	102	10⅛x3x¼	T
♦ 19	.....(T) C-90-T	5700	148	164	50000	9720	10.50/20D	11.25/20	Own 501	6–4½x5¼	501	5.5	375	127–2300	7–3½x13.76	Y	Own TF5	5	Own TG	2F	H	7.20–8.68	Tim 35100	TO4IA	631	930	c	FD	68	9x3x¼	T
♦ 20	.....(d) C-90-D	6650	170	170	44000	13325	10.50/24D	13.50/24	Own 501	6–4½x5¼	501	5.5	375	127–2300	7–3½x13.76	Y	OwTF4:A3	12	T-W 79742-W	2F	R	9.3–10.1	Tim 27452	TW4IA	739	1050	c	FD	90	10½x3x A	T
♦ 21	(T)(D) DC-100-T	8100	144	174	60000	11420	9.75/20D	11.25/24	Cum HB6	6–4¾x6	672	17.	500	150–1800	7–4½x16½	Y	BL7341:A3	12	Own GD	2F	H	4.4 –6.97	Tim 27452	TO4IA	631	930	a	D	70	10¾x3x A	T
♦ 22	(d)(D) DC-100-D	9500	158	158	54000	12200	11.25/24D	13.50/24	Cum HB6	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	BL7341:A3	12	Tim 79742W	2F	R	6.32–7.33	Tim 27452	TW4IA	739	1050	a	D	84	10½x3x A	T
♦ 23	.....(N) NFS	5600	195	195	26000	10380	10.50/20D	10.50/20	Own 408	6–4 1/16x5¼	408	5.5	295	110–2400	7–3½x13.76	Y	Own DF5	5	Own TF	2F	H	7.20–8.57	Tim 26452	LO4IDV	580	930	c	FD	119½	9x3x¼	T
♦ 24	.....(N) TS	6600	204	204	29740	11404	10.50/24D	10.50/24	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Own TF4	4	Own TG	2F	H	7.20–8.68	Tim 26452	TO4IA	739	1050	c	FD	129	10½x3x A	T
♦ 25	c.o.e. U-10	1350	84	142	13500	4650	6.50/20D	8.25/20	Her JXB	6–3⅝x4¼	263	5.8	184	73–2300	7–2½x10 H	Y	Cla 185F	4	Tim 54412	SF	H	5.83–6.8	Tim 31015	L4IHV	328	528	c	TD	62	8x2¾x¼	T
♦ 26	c.o.e. U-20	1725	84	142	16000	5220	6.50/20D	9.00/20	Her JXC	6–3¾x4¼	282	5.8	197	78–2300	7–2½x10 H	Y	Cla 200VO	5	Tim 56410	SF	H	6.16–7.4	Tim 32502	L4IHV	358	578	c	TD	62	8x2¾x¼	T
♦ 27	c.o.e. U-30	2300	96	142	18500	6430	7.00/20D	9.00/20	Own 315	6–3¾x4¾	315	5.5	220	81–2400	7–3x12⅝	Y	Cla 200VO	5	Tim 56400	SF	H	6.16–7.4	Tim 35000	L4IHV	402	659	c	TD	74	9x3x¼	T
♦ 28	c.o.e. (N) U-40	3050	106	142	20000	6970	8.25/20D	9.00/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own URL5	5	Own RC	2F	H	6.49–7.89	Tim 35000	LO4IDV	466	694	c	2I	84	9x3x¼	T
♦ 29	c.o.e. (T) U-40-T	3200	96	106	32000	7265	8.25/20D	9.75/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own URL5	5	Own DB	2F	H	6.49–7.89	Tim 35000	LO4IDV	466	694	c	2I	74	9x3x¼	T
♦ 30	c.o.e. (d) U-40-D	3300	96	96	20000	6910	8.25/20D	9.00/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own URL5	5	Own DB	2F	H	6.49–7.89	Tim 35000	LO4IDV	466	694	c	2I	74	9x3x¼	T
♦ 31	c.o.e. (N) U-50	3435	106	142	25000	7530	9.00/20D	9.75/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own URL5	5	Own DB	2F	H	6.49–7.89	Tim 35000	LO4IDV	466	694	c	2I	84	9x3x¼	T
♦ 32	e.u.s. (N) U-60	3800	109	145	26000	7970	9.00/20D	9.75/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own UDF5	5	Own DB	2F	H	6.49–7.89	Tim 35100	LO4IDV	479	793	c	2I	84¼	8x3x⅛	T
♦ 33	e.u.s. (T) U-60-T	4500	98	109	36000	8380	9.00/20D	9.75/20	Own 408	6–4 1/16x5¼	408	5.5	295	110–2400	7–3½x13.76	Y	Own UDF5	5	Own C	2F	H	7.85–8.57	Tim 35000	LO4IDV	567	831	c	2I	73¼	8x3x⅛	T
♦ 34	e.u.s. (d) U-60-D	4400	100	100	26000	8400	9.00/20D	9.75/20	Own 358	6–4x4¾	358	5.5	250	89–2400	7–3x12⅝	Y	Own UDF5	5	Own C	2F	H	7.85–8.57	Tim 26452	LO4IDV	580	930	c	2I	75¼	8x3x⅛	T
♦ 35	e.u.s. (N) U-70	5000	109	163	28000	8290	9.75/20D	10.50/20	Own 408	6–4 1/16x5¼	408	5.5	295	110–2400	7–3½x13.76	Y	Own UDF5	5	Own C	2F	H	7.2 –8.57	Tim 26452	LO4IDV	580	930	c	FD	84¼	8x3x⅛	T
♦ 36	e.u.s. (T) U-70-T	5000	98	109	40000	8400	9.00/20D	10.50/20	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Own UDF5	5	Own C	2F	H	7.2 –8.57	Tim 35000	LO4IDV	567	831	c	FD	73¼	8x3x⅛	T
♦ 37	e.u.s. (N) U-80	5400	128	163	30000	9270	10.50/20D	10.50/24	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Own UTF5	5	Own TG	2F	H	7.2 –8.68	Tim 26452	LO4IDV	631	930	c	FD	103¼	9x3x⅛	T
♦ 38	e.u.s. (T) U-80-T	5450	98	109	45000	9190	9.75/20D	10.50/20	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Own UTF5	5	Own CG	2F	H	7.69–8.52	Tim 26452	LO4IDV	580	930	c	FD	73¼	8x3x⅛	T
♦ 39	e.u.s. (d) U-80-D	5850	109	120	30000	10070	10.50/20D	10.50/24	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Fu 5A62	5	Own CGA	2F	H	7.69–8.52	Tim 26452	LO4IDV	631	930	c	2I	84½	9x3x⅛	T
♦ 40	e.u.s. (N) U-90	6000	128	163	36000	10430	10.50/20D	11.25/20	Own 501	6–4½x5¼	501	5.5	375	127–2300	7–3½x13.76	Y	Own UTF5	5	Own TG	2F	H	7.20–8.68	Tim 26452	TO4IA	631	930	c	FD	103¼	9x3x⅛	T
♦ 41	e.u.s. (T) U-90-T	6000	98	109	50000	9780	10.50/20D	11.25/20	Own 501	6–4½x5¼	501	5.5	375	127–2300	7–3½x13.76	Y	Own CG	5	Own CG	2F	H	7.69–8.52	Tim 26452	TO4IA	631	930	c	FD	73¼	9x3x⅛	T
♦ 42	e.u.s. (d) U-90-D	6850	109	120	44000	12410	10.50/24D	11.25/24	Own 501	6–4½x5¼	501	5.5	375	127–2300	7–3½x13.76	Y	Fu 5A62	5	Tim 79742-W	2F	R	8.59–10.1	Tim 27452	TW4IA	739	1050	c	2I	84¼	10½x3x A	T
♦ 43	e.u.s. (N) UNFS	5600	145	145	27000	9585	10.50/20D	10.50/20	Own 408	6–4 1/16x5¼	408	5.5	295	110–2400	7–3½x13.76	Y	Own UDF4	4	Own TF	2F	H	7.20–8.57	Tim 26452	LO4IDV	637	930	c	FD	120¼	9x3x¼	P
♦ 44	e.u.s. (N) UTS	6600	145	145	29900	10927	10.50/24D	10.50/24	Own 447	6–4¼x5¼	447	5.5	333	116–2400	7–3½x13.76	Y	Own UTF4	4	Own TG	2F	H	7.20–8.68	Tim 26452	TO4IA	631	930	c	FD	120¼	10½x3x A	P
♦ 45	Avail- (3) P-105	1035	96	140	7000	2425	6.00/17S	7.50/17	Wau FC	4–3¼x4	133	5.6	93	36–2800	3–2¼x3½	N	WG T9	4	Tim 53508	SF	H	**–6.6	Tim 30000H	L4IH	266	388	a	TX	48	4x2x¼	T
46	able.....X-110	1370	138	176	11700	3900	6.50/20D	7.00/20	Wau ZKA	6–3⅝x4½	221	5.6	154	66–2900	4–2⅝x5½	N	WG T9	4	Tim 53508	SF	H	**–6.6	Tim 30000H	L4IH	266	388	a	TX	60	8x3x¼	T
47	.....X-120	1520	138	172	13200	4100	7.00/20D	7.50/20	Wau ZKA	6–3⅝x4½	221	5.6	154	66–2900	4–2⅝x5½	N	WG T9	4	Tim 53308	SF	H	**–6.6	Tim 30000H	L4IH	304	477	a	TX	60	10x3x¼	T
48	.....X-140	1690	138	172	13200	4300	7.00/20D	7.50/20	Wau BL	6–3½x4¼	245	5.7	165	73–3000	7–2⅝x10¼	N	WG T9	4	Tim 53308	SF	H	**–6.6	Tim 31000H	L4IH	300	552	a	TX	60	10x3x¼	T
49	.....X-170	1795	138	172	15900	4800	7.50/20D	8.25/20	Wau BM	6–3⅝x4¼	263	5.7	178	78–3100	7–2⅝x10¼	N	WG T9	4	Tim 54411	SF	H	**–6.8	Tim 31000H	L4IH	328	603	a	TX	60	10x3x¼	T
50	.....X-220	1905	138	172	15900	4900	7.50/20D	8.25/20	Wau BK	6–3¾x4¾	282	5.7	188	85–3200	7–2⅝x10¼	N	WG T9A	4	Tim 54411	SF	H	**–6.8	Tim 32502H	L4IH	328	603	a	TX	60	10x3x¼	T
51	.....X-250	2240	138	196	19500	5500	8.25/20D	9.00/20	Wau BZ	6–4x4¼	320	5.7	210	86–2800	7–2⅝x10¼	Y	Fu 5A330	5	Tim 56410	SF	R	**–7.4	Tim 32502H	L4IH	328	603	a	TX	60	12x3x¼	T
52	.....X-280	2440	138	196	23400	6100	9.00/20D	9.75/20	Wau BZ	6–4x4¼	320	5.7	210	86–2800	7–2⅝x10¼	Y	Fu 5A330	5	Tim 58305	SF	R	**–7.8	Tim 33000A	L4IH	370	684	a	TX	60	12x3x¼	T
53	.....X-310	2880	142	196	23400	6800	9.00/20D	9.75/20	Wau MKR	6–4¼x4¾	381	5.3	270	99–2400	7–2⅝x12½	Y	Fu 5–A-430	5	Tim 58305	SF	R	**–7.8	Tim 35000H	L4IH	370	684	a	TX	60	12x3x¼	T
♦ 54	.....X-410	3800	142	196	28200	8000	9.75/20D	10.50/20	Wau SRLR	6–4⅝x5½	462	5.5	330	112–2300	7–3x13¾	Y	Fu 5–A-620	5	Tim 65725H	WF	R	**–8.50	Tim 35000H	L4IH	462	793	a	TD	60	12x3x¼	T
♦ 55	Bantam.....	349	75	75	1700	850	4.00/15S	5.00/15	Own	4–2.26x3	50	7.4	341	22–3800	2–2¼x1.005	N	WG T48E	3	Spl 10	S	H	**–5.25	Spl 10	O4IM	76	104	P	4I	114	8x2 A x.109	....
56	Brockway.....78	895	138	164	13000	3965	6.00/20D	32x6	Con 24B	6–3 1/16x4⅜	210	5.7	154	71–3100	4–2¼x6	N	WG T9	4	Tim 53521H	SF	H	5.66–6.6	Tim 30000H	L4IH	255	402	a	TX	65 A	7 H x3x A	T
57	83	1195	138	176	14000	4100	6.50/20D	7.50/20	Con 25B	6–3 1/16x4⅜	244	5.4	171	84–3250	4–2⅝x6⅜	N	WG T9	4	Tim 53521H	SF	H	5.66–6.6	Tim 30000H	L4IHV	255	402	a	TX	65 A	7 H x3x A	T
58	88	1290	156	176	15000	4500	6.50/20D	7.50/20	Con 25B	6–3 1/16x4⅜	244	5.4	171	84–3250	4–2⅝x6⅜	N	WG T9	4	Tim 53307H	SF	H	6.2 –6.8	Tim 30000H	L4IHV	298	477	a	TX	71 A	7 H x3x A	T
59	92	1560	156	188	16000	4700	7.00/20D	8.25/20	Con 25B	6–3 1/16x4⅜	244	5.4	171	84–3250	4–2⅝x6⅜	N	WG T9	4	Tim 54411H	SF	H	5.83–6.8	Tim 31000H	L4IHV	329	580	a	CD	83 A	8x3x¼	T
60	94	1850	156	188	18500	5050	7.50/20D	8.25/20	Con 25B	6–3 1/16x4⅜	244	5.4	171	84–3250	4–2⅝x6⅜	N	BL B341	4	Tim 56410H	SF	H	6.16–7.4	Tim 31000H	L4IHV	329	580	a	CD	83 A	8x3x¼	T
61	96	1740	156	176	15000	5150	7.00/20D	8.25/20	Con 29B	6–3 1/16x4½	288	5.4	192	78–2650	7–2⅝x13	N	BL B341	4	Tim 53307H	SF	H	5.83–6.8	Tim 31000H	L4IHV	302	528	a	CD	83 A	7 H x3x A	T
62	110	1900	156	188	18000	5490	7.50/20D	8.25/20	Con 29B	6–3 1/16x4½	288	5.4	192	78–2650	7–2⅝x13	N	BL B341	4	Tim 54411H	SF	H	5.83–6.8	Tim 31000H	L4IHV	329	580	a	CD	77 A	8x3x¼	T
63	112	1710	150	188	18000	5150	7.00/20D	8.25/20	Con 38B	6–3¾x4⅝	290	5.6	205	87–2800	7–2⅝x12	N	BL B341	4	Tim 54411H	SF	H	5.83–6.8	Tim 31000H	L4IHV	329	580	a	CD	77 A	8x3x¼	T
64	.....125X	2075	164	188	18000	5570	7.50/20D	8.25/20	Con 31B	6–3⅞x4½	318	5.5	214	86–2600	7–2⅝x13	N	BL B341	4	Tim 54411H	SF	H	5.83–6.8	Tim 31000H	L4IHV	329	580	a	CD	91 A	8x3x¼	T
65	128	1950	156	188	20000	5550	7.50/20D	8.25/20	Con 38B	6–3¾x4⅝	290	5.6	205	87–2800	7–2⅝x12	N	BL B341	4	Tim 56410H	SF	H	5.71–7.4	Tim 31000H	L4IHV	329	580	a	CD	83 A	8x3x¼	T
66	130	2245	164	206	20000	6270	8.25/20D	9.00/20	Con 29B	6–3 1/16x4½	288	5.4	192	78–2650	7–2⅝x13	N	BL B341	4	Tim 56410H	SF	R	6.16–7.4	Tim 32505H	L4IHV	329	580	a	CD	91 A	8x3x¼	T
67	145	2385	176	206	20000	6390	8.25/20D	9.00/20	Con 31B	6–3⅞x4½	318	5.5	214	86–2600	7–2⅝x13	N	BL B341	4	Tim 56410H	SF	R	6.16–7.4	Tim 32505H	L4IHV	329	580	a	CD	103 A	8x3x¼	T
68	.....150X-4	2680	176	206	22000	6520	8.25/20D	9.00/20	Con 32B	6–4½x4½	361	5.4	252	95–2500	7–2⅝x13	Y	BL 3241	4	Tim 56410H	SF	R	5.71–7.4	Tim 32505H	L4IHV	329	580	a	CD	103 A	8x3x¼	T
69	.....150X-5	2710	176	206	22000	6570	8.25/20D	9.00/20	Con 32B	6–4½x4½	361	5.4	252	95–2500	7–2⅝x13	Y	Fu 5–A-43	5	Tim 56410H	SF	R	5.71–7.4	Tim 32505H	L4IHV	329	580	a	CD	103 A	8x3x¼	T
70	.....130-PS	2525	164	206	20000	6250	34x7D	9.00/20	Con 29-B	6–3 1/16x4½	288	5.4	192	78–2650	7–2⅝x13	N	Fu 5–A-43	5	Tim 56410H	SF	R	6.16–7.4	Tim 32505H	L4IHV	329	580	a	CD	91 A	8x3x¼	B
71	.....160X	3295	153	219	25000	7350	9.00/20D	9.75/22	Con 32B	6–4½x4½	361	5.4	252	95–2500	7–2⅝x13	Y	Fu 5–A-43	5	Tim 58205H	SF	R	6.14–7.8	Shu 15785B	L4IHV	396	663	a	CD	83 A	8½x3x A	T
72	.....170X	3640	153	219	25000	7960	9.00/20D	9.75/22	Con 33B	6–4½x4¾	381	4.7	276	106–2600	7–2¾x13 A	Y	Fu 5–A-62	5	Tim 72300H	2F	R	5.78–7.35	Shu 15785B	L4IHV	396	663	a	CD	83 A	8½x3x A	T
73	.....165X	3795	153	219	28000	8150	9.75/20D	10.50/22	Con 32B	6–4½x4½	361	5.4	252	95–2500	7–2⅝x13	Y	Fu 5–A-43	5	Wis 1337BH	2F	R	5.63–8.59	Shu 15785B	L4IHV	484	772	a	CD	83 A	8¼x3x A	T
74	.....175X	4290	153	219	30000	8550	9.00/20D	10.50/22	Con 34B	6–4⅝x4¾	427	4.6	308	118–2600	7–2¾x13 A	Y	Fu 5–A-62	5	Wis 1337BH	2F	R	5.63–8.59	Shu 15785B	L4IHV	484	772	a	CD	83 A	8¼x3x A	T
75	.....195X	4230	153	219	28000	8650	9.75/20D	10.50/22	Con 33B	6–4½x4¾	381	4.7	276	106–2600	7–2¾x13 A	Y	Fu 5–A-62	5	Wis 1337BH	2F	R	5.63–8.59	Shu 15785B	L4IHV	484	772	a	CD	83 A	8¼x3x A	T
76	.....220X	4930	153	219	34000	9050	10.50/20D	11.25/24	Con 34B	6–4⅝x4¾	427	4.6	308	118–2600	7–2¾x13 A	Y	Fu 5–A-62	5	Wis 1757H	2F	R	6.06–8.82	Shu 15795B	L4IHV	536	899	a	CD	83 A	8¼x3x A	T
77	.....240X	5130	153	219	30000	8590	9.75/20D	10.50/24	Con 35B	6–4½x5¼	501	4.5	364	135–2200	7–2¾x13 A	Y	Fu 5–A-62	5	Wis 1337BH	2F	R	5.63–7.52	Shu 15785B	L4IHV	484	772	a	CD	83 A	8¼x3x A	T
78	.....260X	6030	195	219	34000	9720	10.50/22D	11.25/24	Con 35B	6–4½x5¼	501	4	5 364	135–2200	7–2¾x13 A	Y	Fu MHU	4	Wis 1757H	2F	R	6.06–8.82	Shu 15795B	L4IHV	536	899	a	CD	125 A	8¼x3x A	B
79	.....260S	6380	195	219	36000	10000	10.50/24D	11.25/24	Con 35B	6–4½x5¼	501	4.5	364	135–2200	7–2¾x13 A	Y	Fu MHU	4	Wis 1757H	2F	R	6.06–8.82	Shu 15795B	Lw4IDV	600	899	a	CD	125 A	8¼x3x A	B

♦ Denotes new models or change in specifications.

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Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE: Minimum Standard	WHEEL-BASE: Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES (D-dual rear S-single rear): Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Sp'ds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operat'n	BRAKES SERVICE: Lining Area	BRAKES SERVICE: Drum Area	BRAKES SERVICE: Drum Material	BRAKES: Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
♦ 1	Federal (6)...50	3375	135	250	28000	7700	9.00-20D	10.50/24	Wau 6MZRF	6-4¼x4¼	404	5.4	307	108-2600	7-2⅝x12½	Y	Cla 270V	5	Tim 75743H	2F	R	6.85-9.41	Tim 35011H	L4IHV	504	844	a	PD	60	10⅛x3¾x⅞	T
2	(Cont.) (6)...50H	3855	135	250	30000	8100	9.75/20D	10.50/24	Wau 6MZRF	6-4¼x4¼	404	5.4	307	108-2600	7-2⅝x12½	Y	Cla 270V	5	Tim 76736H	2F	R	7.35-9.20	Tim 35011H	L4IHV	504	844	a	PD	60	10⅛x3¾x⅞	T
♦ 3	62	5675	141	211	35000	10200	10.50/20D	11.25/24	Con 22RF	6-4½x5¼	501	5.2	385	139-2400	7-2¾x14⅜	Y	Cla 326VO	5	Tim 76746W	2F	R	7.89-9.20	Tim36000TW	Ws4IA	620	921	a	TD	60	10⅛x3¾x⅞	TF
4	63	5675	141	211	35000	10050	10.50/20D	11.25/24	Wau 6SRKRF	6-4⅝x5½	517	5.5	400	133-2500	7-3x13⅛	Y	Cla 326VO	5	Tim 76746W	2F	R	7.89-9.20	Tim36000TW	Ws4IA	620	921	a	TD	60	10⅛x3¾x⅞	TF
♦ 5	65	6425	141	211	40000	11100	10.50/24D	11.25/24	Con 22RF	6-4½x5¼	501	5.2	385	139-2400	7-2¾x14⅜	Y	Cla 326VO	5	Tim 79733W	2F	R	8.59-10.11	Tim36000TW	Ws4IA	724	1051	a	TD	60	10⅛x3¾x⅞	TF
6	66	6425	141	211	40000	10950	10.50/24D	11.25/24	Wau 6SRKRF	6-4⅝x5½	517	5.5	400	133-2500	7-3x13⅛	Y	Cla 326VO	5	Tim 79733W	2F	R	8.59-10.11	Tim36000TW	Ws4IA	724	1051	a	TD	60	10⅛x3¾x⅞	TF
7	(6)....(c.o.e.) 75	930	104	215	14000	3930	6.00/20†8	8.25/20	Her JXAF	6-3⅛x4¼	228	5.9	175	72-3000	7-2½x10⅜	Y	WG T9	4	Tim 53308H	SF	H	5.14-6.66	Tim 31100H	L4IH	299	478	a	TX	60	8⅛x2⅞x¼	T
8	(6)....(c.o.e.) 80	1260	104	215	17500	4485	6.50/20D	9.00/20	Her JXBF	6-3⅝x4¼	263	6.1	200	82-3500	7-2½x10⅜	Y	WG T9	4	Tim 54411H	SF	H	5.83-6.80	Tim 31102H	L4IHV	330	578	a	TX	60	8⅛x2⅞x¼	T
9	(6)....(c.o.e.) 85	1565	104	215	19000	5240	7.00/20D	9.00/20	Her JXCF	6-3¾x4¼	282	6.1	216	86-3000	7-2½x10⅜	Y	Cla 185F	4	Tim 55411H	SF	H	5.71-7.40	Tim 32515H	L4IHV	374	654	a	TX	60	8⅛x2⅞x¼	T
10	(6)....(c.o.e.) 89	1945	104	215	20000	5360	7.50/20D	9.75/20	Her JXDF	6-4x4¼	320	5.9	244	95-2800	7-2½x10⅜	Y	Cla 205V	5	Tim 56411H	SF	H	6.16-7.40	Tim 32515H	L4IHV	415	735	a	TX	60	8⅛x2⅞x¼	T
11	(6-7)(c.o.e.) 89H	2175	104	215	22500	5840	8.25/20D	9.75/20	Her JXDF	6-4x4¼	320	5.9	244	95-2800	7-2½x10⅜	Y	Cla 205V	5	Tim 58301H	SF	H	6.83-7.80	Tim 32515H	L4IHV	504	844	a	TX	60	8⅛x2⅞x¼	T
♦ 12	Gramm.....11A	695	131	155	6500	2850	7.00/16S	7.50/16S	Her QXB3G	6-3¼x4½	205	5.8	144	56-3500	7-2½x10⅛	N	WG T83	3	Spl 51-1	SF	H	**-5.10	Spl 50-1	L4IH	218	328	a	TX	60½	7x2¾x⅛	T
13	(9).....21A	745	131	155	10000	3000	6.00/20S	32x6-8p	Her QXB3G	6-3¼x4½	205	5.8	144	66-3500	7-2½x10⅛	N	WG T9	4	Cla R650	SF	H	4.62-6.17	Cla F182	L4IH	212	352	a	TX	60½	7x2¾x⅛	T
14	(9).....31A	825	131	227	12000	3300	6.00/20S	32x6-8p	Her QXC3G	6-3⅝x4½	221	5.9	154	67-3000	7-2½x10⅛	N	WG T9	4	Cla R750	SF	H	5.10-6.83	Cla F266	L4IH	233	392	a	TX	60½	7⅛x2¾x¼	T
♦ 15	(9).....41A	885	131	227	14000	3750	6.00/20S	8.25/20	Her QXC3G	6-3⅝x4½	221	5.9	154	67-3000	7-2½x10⅛	N	WG T9	4	Tim 53300	SF	H	4.57-6.60	Tim 30000H	L4IH	252	402	a	TX	60½	7⅛x2¾x¼	T
♦ 16	(9).....46A	1095	131	227	14000	3900	6.00/20S	8.25/20	Her JXBG	6-3⅝x4¼	263	6.1	187	82-3000	7-2½x10⅜	N	WG T9A	4	Tim 53300	SF	H	4.57-6.20	Tim 30000H	L4IH	252	402	a	TX	60½	7⅛x2¾x¼	T
♦ 17	(9).....56A	1295	131	227	17000	4700	6.50/20D	8.25/20	Her JXBG	6-3⅝x4¼	263	6.1	187	82-3000	7-2½x10⅜	N	WG T9A	4	Tim 54411	SF	H	4.12-6.80	Tim 31000H	L4IHV	334	578	a	TX	60½	10x2¾x⅜	P
♦ 18	(9).....71A	1595	131	227	17000	5200	7.00/20D	9.00/20	Her JXCG	6-3¾x4¼	282	5.9	208	85-2900	7-2½x10⅜	N	Cla 200V	5	Tim 55411	SF	H	5.71-7.40	Tim 31000H	L4IHV	334	578	a	TX	60½	10x2¾x⅜	P
♦ 19	(9).....76A	1895	131	227	19000	5400	7.00/20D	9.75/20	Her JXDG	6-4x4¼	320	5.9	244	95-2800	7-2½x10⅜	N	Cla 200V	5	Tim 56411	SF	H	4.44-7.40	Tim 32500H	L4IHV	334	578	a	TX	60½	10x2¾x⅜	P
♦ 20	(9).....86A	2195	131	227	21500	5700	7.50/20D	10.50/20	Her JXDG	6-4x4¼	320	5.9	244	95-2800	7-2½x10⅜	N	Cla 200V	5	Tim 58300	SF	H	5.25-7.80	Tim 33000H	L4IHV	380	660	a	TX	60½	10x2¾x⅜	P
21	(D) (9)....D46A	2420	131	227	14000	4100	6.00/20S	8.25/20	Her DJXB	6-3½x4½	260	14.	178	77-2600	7-3x10⅓	Y	Cla 185F	4	Tim 53300	SF	H	4.57-5.66	Tim 30000H	L4IH	252	402	a	TX	60½	7⅛x2¾x¼	T
22	(D) (9)....D56A	2620	131	227	15000	4900	6.50/20D	8.25/20	Her DJXB	6-3½x4½	260	14.	178	77-2600	7-3x10⅓	Y	Cla 185F	4	Tim 54411	SF	H	4.12-6.80	Tim 31000H	L4IHV	334	578	a	TX	60½	10x2¾x⅜	P
23	(D) (9)....D71A	2875	131	227	17000	5400	7.00/20D	9.00/20	Her DJXC	6-3¾x4½	298	14.	194	84-2600	7-3x10⅓	Y	Cla 200V	5	Tim 55411	SF	H	5.72-6.29	Tim 31000H	L4IHV	334	578	a	TX	60½	10x2¾x⅜	P
24	(D) (9)....D76A	3245	131	227	19000	5700	7.00/20D	9.75/20	Bud 6DT-31	6-3⅝x5½	317	14.	224	90-2300	7-3x9⅞	Y	Cla 200V	5	Tim 56411	SF	H	4.44-7.40	Tim 32500H	L4IHV	334	578	a	TX	60½	10x2¾x⅜	P
25	(D) (9)....D86A	4230	131	227	21500	6000	7.50/20D	10.50/20	Bud 6DT-38	6-3⅞x5½	389	14.	284	96-2100	7-3x12½	Y	Cla 270V	5	Tim 58300	SF	H	5.25-6.83	Tim 33000H	L4IHV	380	660	a	TX	60½	10x2¾x⅜	P
26	(9).....96A	3395	131	227	28000	8000	9.00/20D	10.50/20	Her WXLC3	6-4¼x4¾	404	5.9	294	118-2800	7-2⅝x10⅜	Y	Cla 270V	5	Wis 1337H	2F	H	5.63-8.59	Tim 35000H	L4IHV	474	768	a	TX	60½	12x2¾x⅜	P
27	(D) (9)....D96A	5075	131	227	28000	8100	9.00/20D	10.50/20	Bud 6DT-38	6-3⅞x5½	389	14.	284	96-2100	7-3x12½	Y	Cla 270V	5	Wis 1337H	2F	H	5.63-8.59	Tim 35000H	L4IHV	474	768	a	TX	60½	12x2¾x⅜	P
28	.....GF	5500	150	225	24000	9050	9.75/20D	10.50/20	Her HXC	6-5¼x6	779	4.5	500	143-1600	7-3½x17	N	BL 744	4	Wis 1337H	2F	H	4.29*7.2	Tim 33000	L4IHV	474	768	a	TD	67	12x2¾x¾	TP
29	Hug.....15W	1875	133	163	14000	4400	6.50/20D	8.25/20	Wau 6BM	6-3⅝x4¼	263	5.0	175	74-2500	7-2⅝x10¼	Y	Cla 185F	4	Cla 950	SF	H	**-6.83	Cla F308	L4IHV	306	510	a	T	62	8x3x¼	T
30	.....19W	2125	133	163	18000	5480	7.50/20D	8.25/20	Wau 6BK	6-3⅞x4¼	282	5.0	188	78-2500	7-2⅝x10¼	Y	Fu 5B330	5	Cla R1100	SF	H	**-6.83	Cla F308	L4IHV	360	613	a	T	62	8x3x¼	T
31	.....23W	2275	133	163	30000	5850	7.50/20D	9.00/20	Wau 6BZ	6-4x4¼	320	5.1	210	83-2500	7-2⅝x10¼	Y	Fu 5B330	5	Cla R1100	SF	H	**-6.83	Cla F320	L4IHV	366	613	a	T	62	8x3x¼	T
32	.....42W	3075	140	198	38000	6660	9.00/20D	9.75/20	Wau 6MZR	6-4¼x4¾	404	5.3	286	95-2200	7-2⅝x12½	Y	Fu 5A430	5	Cla 1300	SF	H	5.75-7.16	Cla F320	L4IHV	415	687	a	T	62	8x3x¼	T
33	.....(D) 42W	4900	140	198	38000	7660	9.00/20D	9.75/20	Bud 6LD415	6-4x5½	415	14	308	105-2200	7-3x11½	Y	Fu 5A430	5	Cla 1300	SF	H	5.75-7.16	Cla F320	L4IHV	415	687	a	TD	62	8x3x¼	T
34	.....43W	6050	140	198	50000	10500	10.50/20D	11.25/20	Wau 6GAL	6-5x5½	648	4.6	468	132-1800	7-4x18⅝	Y	Spl 7351	5	Tim 79721W	2F	H	5.34-7.97	Shu 678	W4IA	618	875	a	TD	62	9½x3x⅜	T
35	.....(D) 43W	7025	140	198	50000	10500	10.50/20D	11.25/20	Cum HB6	6-4⅞x6	672	17	500	150-1800	7-4½x16½	Y	Spl 7351	5	Tim 79721W	2F	H	5.34-7.97	Shu 678	W4IA	618	875	a	TD	62	9½x3x⅜	T
36	.....83W	2350	125	125	19500	6520	8.25/20D	9.00/20	Wau 6BK	6-3⅞x4¼	282	5.0	188	78-2500	7-2⅝x10¼	Y	Fu 5B33	5	Cla 1300	SF	H	**-7.16	Cla F320	L4IHV	399	687	a	T	72	6x3⅛x⅛	I
37	.....85W	2750	125	125	23500	7350	9.00/20D	9.75/20	Wau 6BZ	6-4x4¼	320	5.1	210	83-2500	7-2⅝x10¼	Y	Fu 5A43	5	Cla 1300	SF	H	**-7.16	Shu 632	L4IHV	415	351	a	T	72	7x3⅝x⅛	I
38	.....87W	3550	134	134	26000	8190	9.00/20D	9.75/20	Wau 6MZR	6-4¼x4¾	404	5.3	286	95-2200	7-2⅝x12½	Y	Fu 5A43	5	Wis 1337BM	2F	T	**-8.59	Shu 625	W2MV	331	531	a	TD	84	8x4⅛x⅛	I
39	.....92U	5250	134	134	33500	9500	11.25/20D	12.00/24	Wau6SRKR	6-4⅝x5⅝	517	4.5	365	125-2200	7-3x13⅛	Y	Fu 5A62	5	Wis 1910	2F	T	8.88-10.0	Shu 655	W2MV	360	540	a	TD	84	8x4⅛x⅛	I
40	.....(D) 92U	6500	134	134	33500	9915	11.25/20D	12.00/24	Cum HB4	4-4⅞x6	448	17	370	100-1800	5-4½x11½	Y	Fu 5A62	5	Wis 1910	2F	T	8.88-10.0	Shu 655	W2MV	360	540	a	TD	84	8x4⅛x⅛	I
41	.....92H	6150	134	134	36606	11152	11.25/20D	11.25/24	Wau6SRKR	6-4⅝x5½	517	4.5	365	125-2200	7-3x13⅛	Y	Fu 5A62	5	Tim 79740	2F	T	10.12-1	Shu 655	21MV	360	628	A	P	85	8x4.07x.34	I
42	98	7450	144	144	48500	11920	12.00/24D	12.00/24	Wau 6GAL	6-5x5½	648	4.6	468	132-1800	7-4x18⅝	Y	Fu 8A86	8	Tim 79740	2F	T	7.9-10.12	Shu 1673	W4IA	727	1138	a	TD	86½	9x4⅛x⅛	I
43	.....(D) D98	8425	144	144	48500	11920	12.00/24D	12.00/24	Cum HB6	6-4⅞x6	672	17	500	150-1800	7-4½x16½	Y	Fu 8A86	8	Tim 79740	2F	T	7.9-10.12	Shu 1673	W4IA	727	1138	a	TD	86½	9x4⅛x⅛	I
44	.....98CD	8625	150	150	60000	14825	13.50/24D	13.50/24	Wau 6GAL	6-5x5½	648	4.6	468	132-1800	7-4x18⅝	Y	Fu 8B86	8	Own	CD	T	13.0-20.8	Shu 1673	W4IA	717	964	a	TD	89⅜	9x4⅛x⅛	I
45	....(D) D98CD	9600	150	150	60000	15125	13.50/24D	13.50/24	Cum HB6	6-4⅞x6	672	17	500	150-1800	7-4½x16½	Y	Fu 8B86	8	Own	CD	T	13.0-20.8	Shu 1673	W4IA	717	964	a	TD	89⅜	9x4⅛x⅛	I
46	.....HC	5575	113	113	40000	9260	9.00/20D	9.75/20	Cat D4600	6-4¼x5½	468	16	274	72-1800	7-3x14	Y	Fu 5A620	5	Cla 1300	SF	H	5.75-7.16	Shu 632	L4IHV	506	887	a	TD	75	9½x3x⅛	I
47	16	6875	134	134	29100	11100	11.25/20D	11.25/20	Cat D4600	6-4¼x5½	468	16	274	72-1800	7-3x14	Y	Fu 5A62	5	Wis 1910	2F	T	8.88-10.0	Shu 655	W2MV	360	540	a	TD	84	8x4⅛x⅛	I
48	30	8900	167	167	41920	16920	12.00/24D	13.50/24	Cat D8800	4-5¾x8	831	15	496	88-1100	5-3½x	Y	Spl 7341	4	Tim 79740	2F	T	7.9-10.12	Shu 1673	W4IA	727	1138	a	TD	89⅞	9x4⅛x⅛	I
49	Indiana.....86	825	136	196	12000	3350	6.00/20S	7.50/20	Her JXB	6-3⅝x4¼	263	6.11	187	81-2800	7-2½x10⅛	Y	WG T9	4	Tim 53300H	SF	H	5.14-6.6	Tim 30020H	L4IH	296	477	G	TX	56⅜	7⅛x3x⅛	T
50	.....86S	1120	160	214	12000	4000	32x6D	7.50/20	Her JXB	6-3⅝x4¼	263	6.11	187	81-2800	7-2½x10⅛	Y	BL-2253	5	Tim 53300H	SF	H	5.14-6.6	Tim 30020H	L4IH	296	477	G	TX	80⅜	7⅛x3x⅛	T
51	87	955	136	196	14000	4000	6.50/20D	8.25/20	Her-JXB	6-3⅝x4¼	263	6.11	187	81-2800	7-2½x10⅛	Y	WG-T9	4	Tim.5441SAl	SF	H	5.83-6.8	Tim 30020H	L4IH	296	477	G	TX	56⅜	7⅛x3x⅛	T
52	Inter- (11)...D-2	475	113	125	4400	2240	6.00/16S	7.50/15S	Own HD213	6-3¾x4¼	213	6.3	155	78-3400	4-2⅝x6⅛	N	Own HDS	3	Own R1000	S½	H	3.72-4.18	Own F10	B4IH	191	264	c	2I	39	6x1¼x2¼	T
53	national....D-5	470	113	125	4400	2120	6.00/16S	7.50/15S	Wau FC132	4-3¼x4	401	6.0	89	33-2800	3-3½x4½	N	Own HDS	3	Own R1000	S½	H	4.18-5.11	Own F10	B4IH	191	264	c	2I	39	6x1¼x2¼	T
54	.....D-15	605	113	130	6650	2720	7.00/16S	6.00/20	Ow HD213A	6-3¾x4¼	213	6.3	155	78-3400	4-2⅝x6⅛	N	Own HDS	3	Own R1101	SF	H	4.87-5.28	Own F100	B4IH	216	308	c	2I	39	6½x1⅛x2¼	T
55	.....D-30	650	128	173	13200	3410	30x5†8	7.50/20	Ow HD232	6-3¾x4½	232	6.0	170	81-3200	4-2⅝x6⅛	N	Own H41A	4	Own R1200	SF	H	5.28-6.66	Own F300	B4IH	293	412	c	TX	57	8x1¼x2½	T
56	.....DS-30	765	128	173	13300	3510	30x5†8	7.50/20	Own HD232	6-3¾x4½	232	6.0	170	81-3200	4-2⅝x6⅛	N	Own H41A	4	Eat 1275	df	H	5.14-8.11	Own F300	B4IH	293	412	c	TX	57	8x1¼x2½	T
57	.....D-35	970	137	179	14600	4035	6.50/20D	8.25/20	Ow FAB241	6-3⅝x4½	241	5.8	175	84-3200	4-2⅝x5⅛	N	Own H41A	4	Own R1300	SF	H	5.62-7.16	Own F301	B4IHV	293	412	c	PX	60	8¼x2½x⅜	T
58	.....DS-35	1085	137	179	14600	4035	6.50/20D	8.25/20	Ow FAB241	6-3⅝x4½	241	5.8	175	84-3200	4-2⅝x5⅛	N	Own H41A	4	Eat 1275	df	H	5.14-8.11	Own F301	B4IHV	293	412	c	PX	60	8¼x2½x⅜	T
59	.....D-40	1365	134	176	16200	4705	7.00/20D	9.00/20	Ow FAB259	6-3½x4½	259	5.7	192	89-3200	4-2⅝x5⅛	N	Own F51	5	Own R1400	SF	H	5.62-7.16	Own F400	B4IHV	340	478	c	PX	60	8¼x2½x⅜	T
60	.....DS-40	1550	134	176	16325	4830	7.00/20D	9.00/20	Ow FAB259	6-3½x4½	259	5.7	192	89-3200	4-2⅝x5⅛	N	Own F51C	5	Eat 16000	df	H	6.14-8.52	Own F400	B4IHV	340	478	c	PX	60	8¼x2½x⅜	T
61	.....D-50	1975	137	179	18800	6115	7.50/20D	9.75/20	Ow FBB298	6-3¾x4½	298	5.7	218	94-2800	7-2⅛x11⅛	Y	Own F51	5	Own R1500	SF	H	6.43-7.16	Own F500	B4IHV	367	532	c	PX	60	8¼x2½x3½	T
62	.....DS-50	2185	137	179	18800	6115	7.50/20D	9.75/20	Ow FBB298	6-3¾x4½	298	5.7	218	94-2800	7-2⅛x11⅛	Y	Own F52C	df	H	6.43-8.74	Own F500	B4IHV	367	532	c	PX	60	8¼x2½x3½	T
63	.....DR-50	2140	137	179	18935	6250	7.50/20D	9.75/20	Ow FBB298	6-3¾x4½	298	5.7	218	94-2800	7-2⅛x11⅛	Y	Own F51	5	Own R1550	2F	H	**-8.50	Own F500	B4IHV	367	532	c	PX	60	8¼x2½x3½	T
64	.....D-60	2795	149	197	22500	7090	9.00/20D	10.50/20	Ow FBB361	6-4⅛x4½	361	5.2	268	111-2700	7-2⅛x11⅛	Y	Own F52	5	Own R1600	SF	H	**-6.43	Own F600	B4IHV	469	679	c	PX	72	9⅛x2⅞x3½	T
65	.....DR-60	2945	149	197	22500	7090	9.00/20D	10.50/20	Ow FBB361	6-4⅛x4½	361	5.2	268	111-2700	7-2⅛x11⅛	Y	Own F52	5	Own R1661	2F	H	7.10-8.05	Own F600	B4IHV	469	679	c	PX	72	9⅛x2⅞x3½	T
66	.....DR-70	4195	149	197	26900	8000	36x8D	40x10	Ow FBB401	6-4½x5	361	5.2	308	114-2600	7-2⅛x11⅛	Y	Own F52	5	Own R1700	2F	H	8.05-9.03	Own F700	T4IA	617	923	G	PX	72	10x1⅛x3½	T
67	.....A-8	6200	160	225	38000	11835	9.75/20D	12.00/24	Own FEB	6-5¼x6	648	4.4	460	140-2100	7-3¼x17¾	Y	Own H7	5	Own 1305	2F	H	4.95-7.98	Own FW910	T4IA	617	923	G	TD	72	12⅛x⅝x3⅛	T
68	..(e.u.s.) D-300	715	87	117	13200	3185	30x5†8	7.50/20	Ow HD232A	6-3¾x4½	232	6.0	170	81-3200	4-2⅝x6⅛	N	Own H4A	4	Own R1200	SF	H	5.28-6.66	Own F450	B4IH	293	412	c	TX	71¼	6½x⅛x2⅝	T
69	..(e.u.s.) DS-300	830	87	117	13300	3285	30x5†8	7.50 20	Ow HD232A	6-3¾x4½	232	6.0	170	81-3200	4-2⅝x6⅛	N	Own H4A	4	Eat 1275	df	H	5.14-8.11	Own F450	B4IH	293	412	c	TX	71¼	6½x⅛x2⅝	T
70	..(e.u.s.) D-500	2210	94	124	18800	6065	7.50/20D	9.00/20	OwFBB298A	6-3¾x4½	298	5.7	218	94-2800	7-2⅛x11⅛	Y	Own FF51	5	Own R1500	SF	H	6.43-7.16	Own F600	B4IHV	395	572	c	PX	72	9⅛x2⅞x3½	T
71	..(e.u.s.) DS-500	2420	94	124	18800	6065	7.50/20D	9.00/20	OwFBB298A	6-3¾x4½	298	5.7	218	94-2800	7-2⅛x11⅛	Y	OwnFF52C	5	Eat 17050	df	H	6.43-8.74	Own F600	B4IHV	395	572	c	PX	72	9⅛x2⅞x3½	T
72	..(e.u.s.) DR-500	2375	94	124	18935	6190	7.50/20D	9.00/20	OwFBB298A	6-3¾x4½	298	5.7	218	94-2800	7-2⅛x11⅛	Y	Own FF51	5	Own R1550	2F	H	**-8.50	Own F600	B4IHV	395	572	c	PX	72	9⅛x2⅞x3½	T
73	..(e.u.s.) DR-700	4250	94	142	26900	7675	36x8D	40x10	OwFBB401A	6-4½x5	401	5.2	308	114-2600	7-2⅛x11⅛	Y	OwnFF54B	5	Own R1700	2F	H	8.05-9.03	Own F900	T4IA	617	923	G	PX	72	9⅞x3¼x3½	T
74	Kenworth (D) 505	5505	168	204	20200	7350	9.00/20D	9.75/20	Cum HB4	4-4⅞x6	448	17.	335	100-1800	5-4½x11½	Y	Fu 5A620	5	Tim 58300	SF	H	5.25-7.80	Tim 32502	L4IHV	384	659	a	TD	84	7½x3¼x½	C
75	.....(D) 506	5789	168	204	24800	7700	9.00/20D	10.50/20	Cum HB4	4-4⅞x6	448	17.	335	100-1800	5-4½x11½	Y	Fu 5A620	5	Tim 75738	2F	H	6.85-8.64	Tim 32502	L4IHV	478	768	a	TD	84	7½x3¼x½	C
76	.....(D) 507	6200	168	204	32000	8600	9.75/20D	10.50/22	Cum HB4	4-4⅞x6	448	17.	335	100-1800	5-4½x11½	Y	Fu 5A620	5	Tim 76738	2F	H	6.02-9.20	Tim 35100	L4IHV	510	867	a	TD	84	7½x3¼x½	C
77	.....(D) 511	7661	187	205	28000	10700	9.00/22D	9.75/22	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim T18000	CF	R	6.04-10.5	Tim 36000	Ws4IA	614	922	a	TD	102	7½x3¼x½	C
78	.....(D) 519	6994	190	225	26300	10200	9.00/20D	10.50/20	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim 75738	2F	H	6.85-9.41	Tim 35100	Ws4IA	704	1050	a	TD	103	7½x3¼x½	C
79	.....(D) 521	7219	190	225	35000	10000	9.00/20D	10.50/20	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim 76738	2F	H	6.02-9.20	Tim 36000	Ws4IA	704	1050	a	TD	103	7½x3¼x½	C
80	525	4729	168	204	26300	8400	9.00/20D	10.50/24	Bud LO525	6-4½x5½	525	5.5	385	135-2200	7-3x11½	Y	Fu 5A-620	5	Tim 75738	2F	H	6.85-9.41	Tim 35100	L4IHV	510	867	a	TD	84	7½x3¼x½	C
81	526	5060	168	204	32000	8700	9.75/20D	10.50/22	Bud LO525	6-4½x5½	525	5.5	385	135-2200	7-3x11½	Y	Fu 5A-620	5	Tim 76738	2F	H	6.02-9.20	Tim 35100	L4IHV	510	867	a	TD	84	7½x3¼x½	C

† Rear 32 x 6. ♦ Denotes new models or change in specifications.

† Rear 32 x 6. ♦ Denotes new models or change in specifications.

Four-Wheel-Drive

† Rear 32 x 6. ● 10.50/24 single front. ¶ 11.25/24 single front. * Delivered at Factory Price. Includes all Federal Taxes but does not include any state and/or local taxes. ♦ Denotes new models or change in specifications.

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	TRANSMISSION: Forward Sp'ds	REAR AXLE: Make and Model	REAR AXLE: Gear and Type	REAR AXLE: Drive & Torque	REAR AXLE: Gear Ratio, Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make, Location, Type, Operat'n	BRAKES SERVICE: Lining Area	BRAKES SERVICE: Drum Area	BRAKES SERVICE: Drum Material	BRAKES: Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
1	Corbitt...(10) F-12	2375	Opt	Opt	12500	4460	6.50/20D	8.25/20	Con A6244	6-3 1/8 x4 1/4	244	5.4	170	83-3200	4-2 1/4 x6 1/4	N	WG T9	8	Tim 53521H	SF	H	5.14-6.6	Wis F30B	L4IH	270	452	a	TX	Opt	7 1/8 x3 1/2 x 1/4	T
2	.....(10) F-14	3200	Opt	Opt	14500	5060	7.50/20D	8.25/20	Con M6271	6-3 1/2 x4 1/8	271	5.7	191	85-2900	7-2 1/8 x12 1/4	N	Cla B116C	8	Tim 54411H	SF	H	5.83-6.8	Wis F544B	L4IH	335	578	a	TD	Opt	8x3 1/2 x 1/4	T
3	.....(10) F-18	4500	Opt	Opt	18500	6900	8.25/20D	9.00/20	Con E-602	6-4 1/8 x4 1/2	361	5.4	252	95-2500	7-2 1/8 x13	N	Fu MGU	8	Wis 5002L	2F	H	6.00-8.21	Wis F501H1	L4IH	335	578	a	TD	Opt	9x2 1/2 x 1/4	D
4	.....(10) F-19	4300	Opt	Opt	19500	6500	8.25/20D	9.00/22	Con M-6330	6-4x4 1/8	330	5.5	238	103-3000	7-2 1/8 x12 1/4	Y	Fu 5A330	10	Wis 5002L	2F	H	6.62-8.21	Wis F551H	L4IHV	335	578	a	TD	Opt	8x3 1/2 x 1/4	T
5	.....(10) F-23	5500	Opt	Opt	23500	9000	9.00/20D	9.75/22	Con 20-R	6-4 1/8 x4 3/4	381	4.8	276	106-2600	7-2 1/4 x13 1/4	N	Fu 5A430	10	Wis 72300H	2F	H	5.61-8.40	Wis F213H	L4IHV	534	786	a	TD	Opt	8 1/2 x3 1/2 x 1/4	T
6	.....(10) F-27	6800	Opt	Opt	27500	10000	9.75/22D	10.50/22	Con 21-R	6-4 3/8 x4 3/4	428	5.0	325	125-2400	7-2 1/4 x13 1/4	N	Fu 5A620	10	Wis 1337BH	2F	H	6.36-8.59	Wis F313H	L4IHV	625	976	a	TD	Opt	12 1/4 x3 1/4	T
7	.....(10) F-35	8500	Opt	Opt	35500	12500	10.50/20D	11.25/24	Con 22-R	6-4 1/2 x5 1/4	501	5.9	400	150-2200	7-2 1/2 x12 1/4	N	Fu 5A620	10	Wis 1737KW	2F	H	6.39-9.16	Wis F417KW	Ws4IA	701	976	a	TD	Opt	12 1/4 x3 1/4	T
♦ 8	F. W. D.....HS *	2600	132	156	13000	5460	6.50/20D	9.00/20	Wau BK	6-3 1/8 x4 1/4	282	5.7	188	85-3200	7-2 1/8 x10 1/4	Y	Fu 5B33	5	Ti 53543HX1	SF	H	** 7.85	Wis F33-HS	L4IHV	286	452	G	T4	68	7 1/4 x2 1/4 x 1/4	C
♦ 9	.....HH6 *	4380	138	170	18700	7100	9.75/20S	10.50/20	Wau MKR	6-4 1/8 x4 3/4	381	5.3	270	91-2400	7-2 1/8 x12 1/2	Y	Fu 5A43	5	Own HU	BF	H	6.7-8.84	Own HU	L4IHV	496	867	G	T4	85	7x3x 1/4	C
♦ 10	.....CUA *	4640	150	182	20000	7800	9.75/20S	10.50/20	Wau MZR	6-4 1/4 x4 3/4	404	5.4	288	96-2400	7-2 1/8 x12 1/2	Y	Fu 5A43	5	Own 1938	BF	H	6.7-8.9	Own 1937	L4IHV	496	867	G	T4	90	7x3x 1/4	C
♦ 11	.....CU *	4920	150	182	20000	8100	9.75/20S	10.50/20	Wau MZR	6-4 1/4 x4 3/4	404	5.4	288	96-2400	7-2 1/8 x12 1/2	Y	Own U	5	Own 1938	BF	H	6.7-8.9	Own 1937	L4IHV	496	867	G	T4	90	7x3x 1/4	C
♦ 12	.....SUA *	5440	150	182	23600	8600	11.25/20S	11.25/20	Wau SRLR	6-4 3/8 x5 1/8	462	5.5	330	112-2400	7-3x13 1/4	Y	Fu 5A62	5	Own 1938	BF	H	6.7-8.9	Own 1937	L4IHV	496	867	G	T4	90	7x3x 1/4	C
♦ 13	.....SU *	5640	150	182	24000	10100	11.25/20S	11.25/20	Wau SRLR	6-4 3/8 x5 1/8	462	5.5	330	112-2400	7-3x13 1/4	Y	Own U	5	Own 1938	BF	H	6.7-8.9	Own 1937	L4IHV	496	867	G	T4	90	7x3x 1/4	C
♦ 14	.....YU *	6300	150	182	26000	10570	10.50/20D	11.25/20	Wau SRKR	6-4 3/8 x5 1/8	517	5.5	369	126-2400	7-3x13 1/4	Y	Own U	5	Own 1938	BF	H	6.7-8.9	Own 1937	L4IHV	496	867	G	T4	90	8x3x 1/4	C
♦ 15	.....MJ5 *	6700	150	180	27700	11200	9.75/20D	12.75/20	Wau SRKR	6-4 3/8 x5 1/8	517	5.5	369	126-2400	7-3x13 1/4	Y	Fu 5A62	5	Wis 1337	2F	H	6.6-8.6	Own 1337	L4IHV	578	976	G	T4	91	10x3x 1/4	C
♦ 16	.....MJ6 *	7040	150	180	29000	11400	10.50/20D	12.75/20	Wau SRKR	6-4 3/8 x5 1/8	517	5.5	369	126-2400	7-3x13 1/4	Y	Fu 4B86	8	Wis 1337	2F	H	6.6-8.6	Own 1337	L4IHV	578	976	G	T4	91	10x3x 1/4	C
♦ 17	.....M7 *	8800	150	180	37600	12300	12.75/20S	13.50/20	Wau RBR	6-5x5 1/4	677	5.3	491	152-2400	4-3 1/2 x11 1/8	Y	Fu 4B86	8	Wis 1757	2F	H	6.4-8.4	Own 1757	L4IHV	578	976	G	T4	91	10x3x 1/4	C
♦ 18	.....M10 * 10400	150	180	40000	13400	13.50/20S	13.50/24	Her HXE	6-5 3/4 x6	935	5.3	615	198-2000	7-3 1/2 x16 5/8	Y	Fu 4B86	8	Wis 1910	2F	H	7.12-9.3	Own 1910	W4IA	665	1030	G	T4	91	10x3x 1/4	C
♦ 19	.....(T) T26 *	2900	144	144	26000	6000	8.25/20D	9.00/20	Wau BK	6-3 1/8 x4 1/4	282	5.7	188	85-3200	7-2 1/8 x10 1/4	Y	Fu 5B330	5	Ti 53543HX1	SF	H	** 8.0	Wis F33-HS	L4IHV	286	452	G	T4	80	7 1/4 x2 1/4 x 1/4	C
♦ 20	.....(T) T32 *	3995	138	138	32000	7550	8.25/20D	9.00/20	Wau MKR	6-4 1/8 x4 3/4	381	5.3	270	91-2400	7-2 1/8 x12 1/2	Y	Fu 5A430	5	Ti 53543HX1	SF	H	7.8-4.1	Wis F33-HS	L4IHV	366	578	G	T4	76	10x3x 1/4	C
♦ 21	.....(T) T40 *	5450	134	134	40000	10500	9.75/20D	10.50/22	Wau SRKR	6-4 3/8 x5 1/8	517	5.4	369	126-2400	7-3x13 1/4	Y	Fu 5A620	5	Own U	BF	H	7.3-11.2	Own U	L4IHV	568	868	G	T4	71	10x3x 1/4	C
♦ 22	.....(T) T45 *	7725	134	134	45000	11140	10.50/24D	10.50/24	Wau RBR	6-5x5 1/4	677	5.3	491	152-2400	4-3 1/2 x11 1/8	Y	BL 7481	8	Own U	BF	H	**-8.3	Own U	W4IA	512	867	G	T4	71	10x3x 1/4	C
23	Hug.....44-4	5425	150	160	24000	9600	10.50/20S	10.50/20	Wau 6SRL	6-4 3/4 x5 1/4	462	4.6	327	112-2200	7-3x12 3/4	Y	Fu 5A620	5	Wis 72000	2F	H	5.00-7.27	Wis F213	L4IHV	536	864	a	TD	70 3/4	9 1/2 x3x 1/4	T
24	.....D-44-4	6840	150	160	24000	9600	10.50/20S	10.50/20	Bud 6LD468	6-4 1/4 x5 1/2	468	12	345	114-2000	7-3x11 1/2	Y	Fu 5A620	5	Wis 72000	2F	H	5.00-7.27	Wis F213	L4IHV	536	864	A	TD	70 3/4	9 1/2 x3x 1/4	T
25	45-4	6125	150	160	24000	11000	10.50/20S	10.50/20	Wau 6SRK	6-4 3/8 x5 1/2	517	4.5	365	125-2200	7-3x13 1/2	Y	Fu 5A620	5	Wis 1337	2F	H	5.53-8.59	Wis F313	L4IHV	625	972	a	TD	70 3/4	9 1/2 x3x 1/4	T
26	.....D-45-4	7500	150	160	29000	11000	10.50/20S	10.50/20	Bud 6LD468	6-4 1/4 x5 1/2	468	12	345	114-2000	7-3x11 1/2	Y	Fu 5A620	5	Wis 1337	2F	H	5.53-8.59	Wis F313	L4IHV	625	972	A	TD	70 3/4	9 1/2 x3x 1/4	T
27	46-4	8050	160	170	35000	11800	11.25/20S	11.25/20	Wau 6GAL	6-5x5 1/2	648	4.6	468	132-1800	7-4x18 3/4	Y	Spi 7351	5	Wis 1737	2F	H	5.75-9.16	Wis F417	W4IA	654	972	a	TD	86 1/2	10x3x 3/8	T
28	.....D-46-4	9025	160	170	35000	11800	11.25/20D	11.25/20	Cum HB6	6-4 7/8 x6	672	17	500	150-1800	7-4 1/2 x16 1/2	Y	Spi 7351	4	Wis 1337	2F	H	5.75-9.16	Wis F417	W4IA	654	972	A	TD	86 1/2	10x3x 3/8	T
29	Kenworth 539	6118	134	146	24000	19180	9.00/20D	9.75/24	Bud K428	6-4 3/4 x4 3/4	428	5.3	302	108-2400	7-3x11 1/2	Y	Fu 5A62	5	Wis 72300	2F	H	5.77-8.40	Wis F207	L4IHV	458	785	a	PD	72	7 1/2 x3 1/4 x 1/2	C
30	540	7251	134	146	27700	10310	9.75/20D	9.75/24	Bud K428	6-4 3/4 x4 3/4	428	5.3	302	108-2400	7-3x11 1/2	Y	Fu 5A62	5	Wis 1337	2F	H	6.85-9.41	Wis F323	Ws4IA	648	975	a	PD	72	7 1/2 x3 1/4 x 1/2	C
31	541	7835	134	146	27700	10650	9.75/20D	9.75/24	Bud LO525	6-4 1/2 x5 1/2	525	5.5	385	135-2200	7-3x11 1/2	Y	Fu 5A62	5	Wis 1337	2F	H	6.85-9.41	Wis F323	Ws4IA	648	975	a	PD	72	7 1/2 x3 1/4 x 1/2	C
32	542	8412	134	146	35000	10935	10.50/20D	10.50/24	Bud LO525	6-4 1/2 x5 1/2	525	5.5	385	135-2200	7-3x11 1/2	Y	Fu 5A62	5	Wis 1757	2F	H	6.02-8.50	Wis F427	Ws4IA	648	975	a	PD	72	7 1/2 x3 1/4 x 1/2	C
♦ 33	Marmon-(c) LD4-4 *	1557	113	113	4500	2695	7.50/15S	9.00/15S	Ford V8	8-3 1/8 x3 3/4	221	6.1	155	85-3800	3-2.5x5 1/2	N	Ford	4	Ford	8¾	U	**-4.44	Own LD4	FO4IH	162	264	ac	2I	38 1/8	5 1/2 x2x .11	TDx
♦ 34	Herr...(c) OT3-4 *	1715	123	123	6800	3331	7.00/17S	9.75/18S	Ford V8	8-3 1/8 x3 3/4	221	6.1	155	85-3800	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-4.86	Own OT3	FO4IH	201	308	ac	2I	48 1/8	6x2 1/4 x 1/4	T
♦ 35	.....(c) H5-4 *	4502	134	134	13200	3959	6.00/20D	10.50/18S	Ford V8	8-3 1/8 x3 3/4	221	6.1	150	85-3800	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-11	FO4IH	303	506	ac	TX	60 1/8	7x2 1/2 x 1/4	T
♦ 36	.....(c) H6-4 *	1649	158	158	13200	4039	6.00/20D	10.50/18S	Ford V8	8-3 1/8 x3 3/4	221	6.1	150	85-3800	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-11	FO4IH	303	506	ac	TX	84 1/8	7x2 1/2 x 1/4	T
♦ 37	..(c)(c.o.e.) H5-4 *	1875	134	134	13200	3994	6.00/20D	8.25/18	Ford V8	8-3 1/8 x3 3/4	221	6.1	150	85-3800	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-12	FO4IH	303	506	ac	TX	93	7x2 1/2 x 1/4	T
♦ 38	..(c)(c.o.e.) H6-4 *	1910	158	158	13200	4074	6.00/20D	8.25/18	Ford V8	8-3 1/8 x3 3/4	221	6.1	150	85-3800	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-12	FO4IH	303	506	ac	TX	117	7x2 1/2 x 1/4	T
♦ 39	.....(c) HH5-4 *	1627	134	134	13200	3959	6.00/20D	10.50/18S	Ford V8	8-3 1/8 x3 3/4	239	6.1	170	95-3600	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-11	FO4IH	303	506	ac	TX	60 1/8	7x2 1/2 x 1/4	T
♦ 40	.....(c) HH6-4 *	1674	158	158	13200	4039	6.00/20D	10.50/18S	Ford V8	8-3 1/8 x3 3/4	239	6.1	170	95-3600	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-11	FO4IH	303	506	ac	TX	84 1/8	7x2 1/2 x 1/4	T
♦ 41	.(c)(c.o.e.)HH5-4 *	1900	134	134	13200	3994	6.00/20D	8.25/18	Ford V8	8-3 1/8 x3 3/4	239	6.1	170	95-3600	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-12	FO4IH	303	506	ac	TX	93	7x2 1/2 x 1/4	T
♦ 42	(c)(c.o.e.)HH6-4 *	1935	158	158	13200	4074	6.00/20D	8.25/18	Ford V8	8-3 1/8 x3 3/4	239	6.1	170	95-3600	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-6.67	Own IX4-12	FO4IH	303	506	ac	TX	117	7x2 1/2 x 1/4	T
♦ 43	..(c) H5MB-4 *	2980	134	134	9600	4097	13.50/24S	13.50/24S	Ford V8	8-3 1/8 x3 3/4	221	6.1	155	85-3800	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-8.14	Own IX4-10	FO4IH	303	506	ac	TX	60 1/8	7x2 1/2 x 1/4	T
♦ 44	..(c) H5MBS-4 *	4555	134	134	9600	5313	13.50/29S	13.50/24	Ford V8	8-3 1/8 x3 3/4	221	6.1	155	85-3800	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-9.12	Own769H-X1	FO4IH	303	506	ac	TX	60 1/8	7x2 1/2 x 1/4	T
♦ 45	..(c) HH5MB-4 *	3005	134	134	9600	4097	13.50/24S	13.50/24S	Ford V8	8-3 1/8 x3 3/4	239	6.1	170	95-3600	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-8.14	Own IX4-10	FO4IH	303	506	ac	TX	60 1/8	7x2 1/2 x 1/4	T
♦ 46	..(c) HH5MBS-4 *	4580	134	134	9600	5313	13.50/24S	13.50/24	Ford V8	8-3 1/8 x3 3/4	239	6.1	170	95-3600	3-2.5x5 1/2	N	Ford	4	Ford	SF	H	**-9.12	Own769H-X1	FO4IH	303	506	ac	TX	60 1/8	7x2 1/2 x 1/4	T
♦ 47	.....DSD100-4 *	3375	143	Op	13200	5070	6.50/20D	7.50/20	Her JXB	6-3 3/8 x4 1/4	263	5.4	182	78-2800	7-2 1/8 x10 1/2	N	WG T9WG	4	Tim MH1011	SF	H	*-6.6	TWH 101	L4IH	267	452	a	TX	60	7 1/4 x2 1/2 x 1/4	C
♦ 48	.....DSD200-4 *	3635	143	Op	13200	5305	7.00/20D	7.50/20	Her JXC	6-3 1/4 x4 1/4	282	5.3	196	84-2800	7-2 1/8 x10 1/2	N	Ful 5A33	5	Tim MH1011	SF	H	*-6.6	TWH 101	L4IH	267	452	a	TX	60	7 1/4 x2 1/2 x 1/4	C
♦ 49	.....DSD300-4 *	3980	143	Op	15900	5795	7.50/20D	8.25/20	Her JXD	6-4x4 1/4	320	5.3	224	95-2800	7-2 1/8 x10 1/2	N	Ful 5A33	5	Tim MH1022	SF	H	*-6.8	TWH 102	L4IH	281	527	a	TX	60	7 1/4 x2 1/2 x 1/4	C
♦ 50	.....DSD400-4 *	5275	158	Op	19500	7812	8.25/20D	9.00/20	Her WXC3	6-4 1/4 x4 1/8	383	5.0	260	106-2800	7-2 1/8 x13 1/4	Y	Fu 5A430	5	Tim MH1033	SF	H	*-6.83	TWH-103	L4IH	342	578	a	FD	72	9 1/4 x3x 1/4	C
♦ 51	.....DSD500-4 *	5860	158	Op	23400	8710	9.00/20D	9.75/20	Her WXLC3	6-4 1/4 x4 3/4	404	5.0	293	118-2800	7-2 1/8 x13 1/4	Y	Fu 5A430	5	Tim MH1044	SF	H	*-7.8	TWH 104	L4IH	384	785	a	FD	72	9 1/4 x3x 1/4	C
♦ 52	.....DSD550-4 *	6440	158	Op	23400	8970	9.00/20D	9.75/20	Her RXB	6-4 1/2 x5 1/4	501	4.5	330	110-2200	7-3x13 1/4	Y	Fu 5A620	5	Tim MH1044	SF	H	*-7.8	WH 104	L4IH	384	785	a	FD	72	9 1/4 x3x 1/4	C
♦ 53	...DSD550DR-4 *	7350	158	Op	23400	9980	9.00/20D	9.75/20	Her RXB	6-4 1/2 x5 1/4	501	5.4	360	121-2200	7-3x13 1/4	Y	Fu 5A620	5	Wis MH1066	2F	H	*-7.52	WH 106	L4IH	738	975	a	FD	72	9 1/4 x3x 1/4	C
♦ 54	..... DSD600-4 *	7700	161	Op	23400	9730	9.00/20D	9.75/20	Her RXB	6-4 1/2 x5 1/4	501	5.4	360	121-2200	7-3x13 1/4	Y	Fu 5A620	5	Wis MH1055	2F	H	*-7.21	WH 105	L4IH	461	785	a	FD	72	9 1/4 x3x 1/4	C
♦ 55	..... DSD700-4 *	8895	161	Op	25200	10330	9.75/20D	9.75/22	Her RXB	6-4 1/2 x5 1/4	501	5.4	360	121-2200	7-3x13 1/4	Y	Fu 5A620	5	Wis MH1077	2F	H	*-7.52	WH 107	Ws4IA	738	975	a	FD	72	10 1/8 x3x 1/4	C
♦ 56	..... DSD800-4 *	9750	161	Op	30000	10880	10.50/20D	10.50/22	Her RXC	6-4 3/8 x5 1/4	529	4.9	390	131-2200	7-3x13 1/4	Y	Fu 5A620	5	Wis MH1088	2F	H	*-8.23	WH 108	Ws4IA	738	975	a	FD	72	10 1/8 x3x 1/4	C
♦ 57	..... DSD900-4 *	12785	198	Op	30000	13530	10.50/20D	10.50/22	Her HXD	6-5 1/2 x6	855	4.5	555	180-2200	7-3 1/2 x16 5/8	Y	Fu 4A86	4	Wis MH1088	2F	H	*-8.23	WH 108	Ws4IA	738	975	a	FD	102	10 1/8 x3x 3/8	P
♦ 58	..... DSD1000-4 *	13850	198	Op	40000	15680	10.50/24D	10.50/24	Her HXE	6-5 3/4 x6	935	4.5	610	198-2200	7-3 1/2 x16 5/8	Y	Fu 4A86	4	Wis MH1099	2F	H	*-8.88	WH 109	Ws4IA	738	975	a	FD	102	10 1/8 x3x 3/8	P
♦ 59	(D) DDSD200-4 *	4920	143	Op	13200	5705	7.50/20D	7.50/20	Her DJXB	6-3 1/4 x4 1/2	260	14.	178	79-2600	7-3x10 1/2	N	Ful 5A33	5	Tim MH1011	SF	H	*-5.66	TWH 101	L4IH	267	452	a	TX	60	7 1/4 x2 1/2 x 1/4	C
♦ 60	(D) DDSD300-4 *	5155	143	Op	15900	6185	7.50/20D	8.25/20	Her DJXC	6-3 1/4 x4 1/2	298	14.	208	83-2600	7-3x10 1/2	N	Ful 5A33	5	Tim MH1022	SF	H	*-5.83	TWH 102	L4IH	281	527	a	TX	60	7 1/4 x2 1/2 x 1/4	C
♦ 61	D DDSD550DR-4 *	9640	158	Op	23400	10590	9.00/20D	9.75/20	Her DRXB	6-4 3/8 x5 1/4	474	14.	350	124-2200	7-3x13 1/4	Y	Fu 5A620	5	Wis MH1066	2F	H	*-6.65	WH 106	L4IH	738	975	a	FD	72	9 1/4 x3x 1/4	C
♦ 62	(D) DDSD700-4 *	11350	161	Op	25200	10940	9.75/20D	9.75/22	Her DRXB	6-4 3/8 x5 1/4	474	14.	350	124-2200	7-3x13 1/4	Y	Fu 5A620	5	Wis MH1077	2F	H	*-6.65	WH 107	Ws4IA	738	975	a	FD	72	10 1/8 x3x 1/4	C
♦ 63	(D) DDSD800-4 *	12150	161	Op	30000	11465	10.50/20D	10.50/22	Her DRXB	6-4 3/8 x5 1/4	474	14.	350	124-2200	7-3x13 1/4	Y	Fu 5A620	5	Wis MH1088	2F	H	*-7.0	WH 108	Ws4IA	738	975	a	FD	72	10 1/8 x3x 1/4	C
♦ 64	(D) DDSD900-4 *	15310	198	Op	30000	14230	10.50/20D	10.50/22	Her DHXB	6-5x6	707	14.	530	176-1800	7-3 1/4 x17	Y	Fu 4A86	4	Wis MH1088	2F	H	*-7.22	WH 108	Ws4IA	738	975	a	FD	102	10 1/8 x3x 3/8	P
♦ 65	(D) DDSD1000-4 *	16105	198	Op	40000	16405	10.50/24D	10.50/24	Her DHXB	6-5x6	707	14.	530	176-1800	7-3 1/4 x17	Y	Fu 4A86	..	Wis MH1099	2F	H	*-7.95	WH 109	Ws4IA	738	975	a	FD	102	10 1/8 x3x 3/8	P
♦ 66	Oshkosh .....JCB *	2885	153	200	14000	5900	7.00/20D	9.00/20	Her JXC	6-3 1/4 x4 1/4	282	5.3	197	85 3000	7-2 1/8 x10 1/4	Y	Fu 5B33	5	Tim 54400	SF	H	4.4-5.2	Own JCB	L4IH	335	578	a	TX	71	6x3 1/2 x 1/4	P
♦ 67	.....JD *	3490	153	200	15500	6050	7.50/20D	9.00/20	Her JXD	6-4x4 1/4	320	5.3	224	94-2800	7-2 1/2 x10 1/4	Y	Fu 5B33	5	Tim 54400	SF	H	4.4-5.2	Own JD	L4IH	335	578	a	TX	71	6x3 1/2 x 1/4	P
♦ 68	.....B3S *	5140	146	201	21500	8250	10.50/20S	10.50/20	Her WXC3	6-4 1/4 x4 1/2	383	4.7	265	106-2800	7-2 3/8 x13 1/4	Y	Fu 5A43	5	Own B3S	SF	H	4.8-7.8	Own B3S	L4IH	510	867	G	TX	78 1/4	7x3x 1/2	TfL
♦ 69	.....B3D *	5640	146	201	23000	8250	10.50/20S	10.50/20	Her WXC3	6-4 1/4 x4 1/2	383	4.7	265	100-2400	7-2 3/8 x13 1/4	Y	Fu 5A43	5	Own B3D	2F	H	5.0-8.4	Own B3D	L4IH	560	867	G	TX	78 1/4	7x3x 1/2	TfL
♦ 70	.....C3S *	5635	146	201	23800	8700	9.75/20D	11.25/20	Her YXC2	6-4 1/2 x4 1/2	453	4.4	300	100-2400	7-3x14	Y	Fu 5A620	5	Own C3S	SF	H	5.6-7.8	Own C3S	L4IH	518	867	G	TX	82	7x3x 1/2	TfL
♦ 71	.....C3D *	6185	146	201	24000	9575	9.75/20D	11.25/20	Her YXC2	6-4 1/2 x4 1/2	453	4.4	300	100-2400	7-3x14	Y	Fu 5A620	5	Own C3D	2F	H	5.6-8.4	Own C3D	L4IH	630	975	G	TX	82	7x3x 1/4	TfL
♦ 72	.....W-500 *	6165	150	204	25000	10600	10.50/20S	11.25/20	Her RXB	6-4 1/2 x5 1/4	500	5.4	330	110-2200	7-3x12 3/4	Y	Fu 5A620	5	Own 500	2F	H	7.2-8.6	Own 500	L4IH	630	975	G	TX	82	8 1/4 x3x 3/8	Tf
♦ 73	.....W-600 *	6750	150	204	26000	11100	10.50/20D	11.25/20	Her RXBO	6-4 1/2 x5 1/4	500	5.4	360	121-2200	7-3x12 3/4	Y	Fu 5A620	10	Own 600	2F	H	7.27-8.6	Own 600	L4IH	630	975	G	TX	82	8 1/4 x3x 3/8	Tf
♦ 74	.....W-700 *	6900	150	204	29000	11500	10.50/20D	11.25/20	Her RXCO	6-4 3/8 x5 1/4	529	5.4	380	128-2200	7-3x12 3/4	Y	Fu 5A620	10	Own 700	2F	H	7.27-8.6	Own 700	L4IH	630	975	G	TX	82	10 1/2 x3x 3/8	Tf
♦ 75	..... W-800 *	7975	150	204	31500	12300	10.50/20D	12.00/20	Her RXLD	6-4 3/4 x5 1/4	558	5.4	405	141-2200	7-3x12 3/4	Y	Fu 5A620	10	Own FD	2F	H	8.05-9.15	Own FD	L4IH	630	975	G	TX	82	10 1/2 x3x 3/8	Tf
♦ 76	.....BG3 *	9200	168	190	38000	14200	13.50/20S	12.75/20	Her HXB	6-5x6	707	4.5	455	148-2000	7-3 1/2 x16 5/8	Y	Spi 7341	4	Own BG	2F	H	4.7-6.8	Own BG3	B4IM	666	975	G	TX	85	10x3 1/4 x 1/2	L
♦ 77	.....GD *	10400	168	190	40000	14500	13.50/20S	12.75/20	Her HXE	6-5 3/4 x6	935	4.5	610	199-2000	7

Six-Wheelers

Wheels Driven

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Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number, Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Sp'ds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operat'n	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimension (Min. Std. W. B.)	FRAME: Side Rail Dimensions	FRAME: Type
1	Ken-...(D) 509 4R	7046	212	254	35000	10350	9.00/20D	9.75/22	Cum HB4	4-4⅞x6	448	17.	335	100-1800	7-4½x11½	Y	Fu 5A620	5	Tim SW252	WF	R	6.20-9.25	Tim 35100	L6IHV	668	1192	a	TD	102	7½x3¼x½	C
2	worth.(D) 510 2F	8697	221	247	39000	12630	9.00/22D	9.75/22	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim T18000	CF	R	6.04-10.5	Tim 36000	Ws4rIA	692	1030	a	TD	134	7½x3¾x½	C
3	....(D) 512 4R	8334	205	235	38000	13500	9.00/20D	9.75/22	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim SW252	WF	R	6.20-9.25	Tim 36000	Ws4rIA	800	1194	a	TD	120	7½x3¾x½	C
4	....(D) 520 2F	7886	214	239	40300	12200	9.00/20D	10.50/22	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim 75738	2F	H	6.85-9.41	Tim 36000	Ws4rIA	782	1158	a	TD	127	7½x3¾x½	C
5	....(D) 522 2F	8061	214	239	46000	12150	9.00/20D	10.50/22	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim 76738	2F	H	6.02-9.2	Tim 36000	Ws4rIA	782	1158	a	TD	127	7½x3¾x½	C
6	....(D) 523 4R	9149	214	239	42000	13700	9.00/20D	10.50/24	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim SW352	WF	R	5.40-10.2	Tim 36000	Ws4rIA	800	1194	a	TD	127	7½x3¾x½	C
7	....(D) 524 4R	9410	214	239	54000	14700	9.75/20D	10.50/24	Cum HB6	6-4⅞x6	672	17.	500	150-1800	7-4½x16½	Y	BL 7341	4	Tim SW452	WF	R	6.0-11.7	Tim 36000	Ws4rIA	980	1450	a	TD	127	7½x3¾x½	C
8	.....527 4R	5942	204	234	35000	11000	9.00/20D	9.75/22	Bud LO525	6-4½x5½	525	5.5	385	135-2200	7-3x11½	Y	Fu 5A-620	5	Tim SW-252	WF	R	6.20-9.25	Tim 35100	Ws4rIA	800	1194	a	TD	120	7½x3¾x½	C
9	.....528 4R	7289	211	236	39000	12400	9.75/20D	10.50/24	Bud LO525	6-4½x5½	525	5.5	385	135-2200	7-3x11½	Y	Fu 5A-620	5	Tim SW-352	WF	R	5.40-10.2	Tim 35100	Ws4rIA	800	1194	a	TD	127	7½x3¾x½	C
10	....(D) 546 4R	6909	204	234	33500	10950	9.00/20D	9.75/22	Cum AA6	6-4x5	377	17.	270	100-2200	7-3⅞x	Y	Fu 5A-430	5	Tim SW252	WF	R	6.20-9.25	Tim 32502	L6IHV	636	1093	a	TX	120	7½x3¾x½	C
11	.....556 4R	5429	204	234	35000	10750	9.00/20D	9.75/22	HerWXLC3	6-4¼x4¾	404	5.5	294	118-2800	7-2⅝x10‡‡	Y	Fu 5A430	5	Tim SW252	WF	A	5.00-11.0	Tim 35100	L4rIHV	800	1194	a	TX	120	7½x3¾x½	C
	Marmon-Herr.																														
♦ 12	..... DSD200-6 *	5980	167	Op	19500	8065	7.00/20D	7.00/20	Her JXC	6-3¾x4¼	282	5.3	196	84-2800	7-2½x10‡‡	N	Ful 5A33	5	Wis MH1100	2F	R	*-7.36	WH 110	L6IH	549	930	a	TX	84	7‡‡x2½x¼	P
♦ 13	..... DSD300-6 *	6700	167	Op	25500	9025	7.50/20D	8.25/20	Her JXD	6-4x4¼	320	5.3	224	95-2800	7-2½x10‡‡	N	Ful 5A33	5	Wis MH1111	2F	R	*-7.66	WH 111	L6IH	600	1055	a	TX	84	7‡‡x2½x¼	P
♦ 14	..... DSD400-6 *	7700	158	Op	26500	9600	8.25/20D	9.00/20	Her WXC3	6-4¼x4½	383	5.0	260	106-2800	7-2⅝x13¼	Y	Ful 5A430	5	Wis MH1111	2F	R	*-9.33	WH 111	L6IH	600	1055	a	FD	72	9‡‡x3x¼	P
♦ 15	..... DSD500-6 *	9015	158	Op	32500	10400	8.25/22D	9.00/20	HerWXLC3	6-4¼x4½	404	5.0	293	118-2800	7-2⅝x13¼	Y	Ful 5A430	5	TW MH1133	2F	R	*-9.33	WH 113	Ws6IA	726	1300	a	FD	72	9‡‡x3x¼	P
♦ 16	..... DSD600-6 *10570		173	Op	32500	12200	9.00/20D	9.00/20	Her RXB	6-4½x5¼	501	4.5	330	110-2200	7-3x13¼	Y	Ful 5A620	5	TW MH1133	2F	R	*-8.43	WH 113	Ws6IA	726	1300	a	FD	84	9‡‡x3x¼	P
♦ 17	..... DSD800-6 *11920		173	Op	42000	14475	9.75/20D	9.75/22	Her RXC	6-4½x5¼	529	4.9	390	131-2200	7-3x13¼	Y	Ful 5A620	5	TW MH1144	2F	R	*-8.14	WH 114	Ws6IA	1056	1626	a	FD	84	10⅛x3x⅜	P
♦ 18	..... DSD900-6 *14000		192	Op	42000	17590	9.75/20D	9.75/22	Her RXD	6-5½x6	855	4.5	555	180-2200	7-3½x16½	Y	Ful 4A86	4	TW MH1144	2F	R	*-9.11	WH 114	Ws6IA	1056	1626	a	FD	96	10⅛x3x⅜	P
♦ 19	..... DSD1000-6 *16000		198	Op	52000	19200	10.50/20D	10.50/24	Her RXE	6-5¾x6	935	4.5	610	198-2200	7-3½x16⅝	Y	Ful 4A86	4	TW MH1155	2F	R	*-9.11	WH 115	Ws6IA	1056	1626	a	FD	102	10¼x3x⅜	P
♦ 20	(D) DDSD200-6 *	7255	167	Op	19500	8465	7.00/20D	7.00/20	Her DJXB	6-3½x4½	260	14.	178	79-2600	7-3x10‡	N	Ful 5A33	5	W MH1100	2F	R	*-6.66	WH 110	L6IH	549	930	a	TX	84	7‡‡x2½x¼	P
♦ 21	(D) DDSD300-6 *	7975	167	Op	25500	9425	7.50/20D	8.25/20	Her DJXC	6-3¾x4½	288	14.	208	83-2600	7-3x10‡	N	Ful 5A33	5	W MH1111	2F	R	*-6.41	WH 111	L6IH	600	1055	a	TX	84	7‡‡x2½x¼	P
♦ 22	(D) DDSD600-6 *13025		173	Op	32500	12800	9.00/20D	9.00/20	Her DRXB	6-4⅝x5¼	474	14.	350	124-2200	7-3x13¼	Y	Ful 5A620	5	TW MH1133	2F	R	*-7.66	WH 113	Ws6IA	726	1300	a	FD	84	9‡‡x3x¼	P
♦ 23	(D) DDSD800-6 *14375		173	Op	42000	15060	9.75/20D	9.75/22	Her DRXB	6-4⅝x5¼	474	14.	350	124-2200	7-3x13¼	Y	Ful 5A620	5	TW MH1144	2F	R	*-8.14	WH 114	Ws6IA	1056	1626	a	FD	84	10⅛x3x⅜	P
♦ 24	(D) DDSD900-6 *16650		192	Op	42000	18325	9.75/20D	9.75/22	Her DHXB	6-5x6	707	14.	530	176-1800	7-3¾x17	Y	Ful 4A86	4	TW MH1144	2F	R	*-8.14	WH 114	Ws6IA	1056	1626	a	FD	96	10⅛x3x⅜	P
♦ 25	(D) DDSD1000-6 *18400		198	Op	52000	19950	10.50/20D	10.50/24	Her DHXB	6-5x6	707	14.	530	176-1800	7-3¾x17	Y	Ful 4A86	4	TW MH1155	2F	R	*-8.14	WH 115	Ws6IA	1056	1626	a	FD	102	10⅛x3x⅜	P
♦ 26	.....(c) H5-6 *	2627	156	156	22000	5474	6.00/20D	10.50/18S	Ford V8	8-3⅛x3¾	221	6.1	155	85-3800	3-2.5x5½	N	Ford	4	Tim Ford	SF	R	**-6.67	Own IX4-11	FO6IH	503	836	ac	TX	82⅛	7½x2½x¼	TL
♦ 27	.....(c) H6-6 *	2672	180	180	22000	5595	6.00/20D	10.50/18S	Ford V8	8-3⅛x3¾	221	6.1	155	85-3800	3-2.5x5½	N	Ford	4	Tim Ford	SF	R	**-6.67	Own IX4-11	FO6IH	503	836	ac	TX	106⅛	7½x2½x¼	TL
♦ 28	(c) (c.o.e.) H5-6 *	2900	156	156	22000	5508	6.00/20D	8.25/18	Ford V8	8-3⅛x3¾	221	6.1	155	85-3800	3-2.5x5½	N	Ford	4	Tim Ford	SF	R	**-6.67	Own IX4-12	FO6IH	503	836	ac	TX	115	7½x2½x¼	TL
♦ 29	(c) (c.o.e.) H6-6 *	2945	180	180	22000	5630	6.00/20D	8.25/18	Ford V8	8-3⅛x3¾	221	6.1	155	85-3800	3-2.5x5½	N	Ford	4	Tim Ford	SF	R	**-6.67	Own IX4-12	FO6IH	503	836	ac	TX	139	7½x2½x¼	TL
♦ 30	.....(c) HH5-6 *	2652	156	156	22000	5474	6.00/20D	10.50/18S	Ford V8	8-3⅛x3¾	239	6.1	170	95-3600	3-2.5x5½	N	Ford	4	Tim Ford	SF	R	**-6.67	Own IX4-11	FO6IH	503	836	ac	TX	82⅛	7½x2½x¼	TL
♦ 31	.....(c) HH6-6 *	2697	180	180	22000	5595	6.00/20D	10.50/18S	Ford V8	8-3⅛x3¾	239	6.1	170	95-3600	3-2.5x5½	N	Ford	4	Tim Ford	SF	R	**-6.67	Own IX4-11	FO6IH	503	836	ac	TX	106⅛	7½x2½x¼	TL
♦ 32	(c) (c.o.e.) HH5-6 *	2925	156	156	22000	5508	6.00/20D	8.25/18	Ford V8	8-3⅛x3¾	239	6.1	170	95-3600	3-2.5x5½	N	Ford	4	Tim Ford	SF	R	**-6.67	Own IX4-12	FO6IH	503	836	ac	TX	115	7½x2½x¼	TL
♦ 33	(c) (c.o.e.) HH6-6 *	2970	180	180	22000	5630	6.00/20D	8.25/18	Ford V8	8-3⅛x3¾	239	6.1	170	95-3600	3-2.5x5½	N	Ford	4	Tim Ford	SF	R	**-6.67	Own IX4-12	FO6IH	503	836	ac	TX	139	7½x2½x¼	TL
	Sterling																														
♦ 34	(16)HBT128 2C	4840	181	227	32000	10625	9.00/20D	9.75/20	Wau 6MZR	6-4¼x4¾	404	5.3	286	99-2400	7-2⅝x12½	Y	Fu 5A430	5	TimSBT252H	SF	L	5.57-7.80	Tim 35000N	L4rIHV	504	968	a	TX	102	9x3¼x¼	D
♦ 35	(15-16)HWS128 4R	5325	181	227	32000	10775	9.00/20D	9.75/20	Wau 6MZR	6-4¼x4¾	404	5.3	286	99-2400	7-2⅝x12½	Y	Fu 5A430	5	TimSW251H	WF	L	6.20-10.40	Tim 35000N	L4rIHV	504	968	a	TX	102	9x3¼x¼	D
♦ 36	(15-16)JWS160 4R	8165	201	241	40000	12775	9.75/20D	10.50/20	Wau6SRKR	6-4⅝x5½	517	5.5	368	125-2300	7-3x13¼	Y	Fu 5A62	5	TimSW352W	WF	L	6.00-10.67	Tim 26452N	Ws4rIA	800	1348	a	TX	122	9x3¼x¼	D
♦ 37	(15-16)HWS2358 4R	9090	201	241	50000	13575	10.50/20D	10.50/24	Wau6SRKR	6-4⅝x5½	517	5.5	368	125-2300	7-3x13¼	Y	Fu 5A62	5	TimSW452W	WF	L	6.00-10.25	Tim 27452N	Ws4rIA	800	1316	a	TX	122	9¼x3⅝x⅜	D
♦ 38	(16)HCS235 4R	10820	211	251	52000	15250	9.75/22D	10.50/24	Wau6SRKR	6-4⅝x5½	517	5.5	369	125-2300	7-3x13¼	Y	Fu 5A62	15	OwnSR255W	CD	R	10.73-13.25	Tim 27452N	Ws4rIA	868	1368	s	JX	123	9¼x3⅝x⅜	D
♦ 39	(16)HCS265 4R	12350	211	251	60000	16400	10.50/20D	11.25/24	Wau 6RBR	6-5x5¾	677	5.3	492	152-2200	4-3½x11	Y	Fu 4B86	12	OwnSR265W	CD	R	10.76-13.56	Tim 27452N	Ws4rIA	868	1368	s	JX	123	9¼x3⅝x⅜	Y
♦ 40	(16)HCS297 4R	13850	211	251	70000	18300	10.50/24†$	11.25/24‡$	Wau 6RBR	6-5x5¾	677	5.3	492	152-2200	4-3½x11	Y	Fu 4B86	12	OwnSR330W	CD	R	10.76-15.37	Tim 27452N	Ws4rIA	988	1552	a	JX	123	9¼x3⅝x⅜	Y
♦ 41	(16)HCS330 4R	15200	180	180	80000	20100	10.50/24††$	11.25/24‡‡$	Wau 6RBR	6-5x5¾	677	5.3	492	152-2200	4-3½x11	Y	Fu 4B86	12	OwnSR330W	CD	R	10.76-15.37	Tim 27451N	Ws4rIA	988	1552	a	JX	99	12x3½x⅜	Y
	Truckstell																														
42	(c)TRC-2X250 2F	1653	154	216	22000	5900	7.00/20xD	8.25/20	Chev	6-3¾x3½	216	6.2	170	78-3200	4-2¾x5⅛	N	Chev	4	Eat 1325	SFd	U	5.83-8.57	Chev	C6IHV	511	729	e	2I	81	7½x3x	C
43	(c)TRC-2X400 2F	1869	157	218	26000	6100	7.50/20xD	8.25/20	Chev	6-3¾x3½	216	6.2	170	78-3200	4-2¾x5⅛	N	Chev	4	Eat 1465	SFd	U	6.5-9.02	Chev	B6IHV	511	729	e	2I	83	7½x3x	C
44	(c)TRC-2X250 2F	1893	152	202	23000	6050	7.00/20xD	8.25/20	Chev	6-3¾x3½	216	6.2	170	78-3200	4-2¾x5⅛	N	Chev	4	Eat 1325	SFd	U	5.83-8.57	Chev	C6IHV	511	729	e	2I	81	7½x3x	C
♦ 45	(c)TRC-2X400 2F	2109	154	204	27000	6250	7.50/20xD	8.25/20	Chev	6-3¾x3½	216	6.2	170	78-3200	4-2¾x5⅛	N	Chev-0	4	Eat 1465	SFd	U	6.5-9.02	Chev	B6IHV	511	729	e	2I	83	7½x3x	C
46	(c)TRC-4XC26C 4R	2119	141	212	26000	6500	7.50/20xD	8.25/20	Chev	6-3¾x3½	216	6.2	170	78-3200	4-2¾x5⅛	N	Chev-0	8	Chev	SFd	H	**-6.4	Chev	C6IHV	511	729	e	2I	66	7½x3x	C
♦ 47	(c)TRC-4XC29E 4R	2481	141	212	29000	7100	7.50/20xD	8.25/20	Chev	6-3¾x3½	216	6.2	170	78-3200	4-2¾x5⅛	N	Chev-0	8	Eat 1325	SFd	H	6.88-9.56	Chev	C6IHV	511	729	e	2I	66	7½x3x	C
48	(c)TRC-4XC27C 4R	2338	116	186	27000	6690	7.50/20xD	8.25/20	Chev	6-3¾x3½	216	6.2	170	78-3200	4-2¾x5⅛	N	Chev-0	8	Chev	SFd	H	**-6.4	Chev	C6IHV	511	729	e	2I	71	7½x3x	C
49	(c)TRC-4XC30E 4R	2695	116	186	30000	7280	7.50/20xD	8.25/20	Chev	6-3¾x3½	216	6.2	170	78-3200	4-2¾x5⅛	Y	Chev-0	8	Eat 1325	SFd	H	6.88-9.56	Chev	C6IHV	511	729	e	2I	71	7½x3x	C
50	(c)TRF-2X250 2F	1623	155	252	22000	5900	7.00/20xD	8.25/20	Ford	8-3⅛x3¾	239	6.2	170	95-3600	3-2.5x4.7	N	Ford	4	Eat 1350	SFd	H	5.83-8.57	Ford	F6IHV	501	836	a	TX	81½	7½x3x	C
51	(c)TRF-2X400 2F	1880	156	253	26000	6000	7.50/20xD	8.25/20	Ford	8-3⅛x3¾	239	6.2	170	95-3600	3-2.5x4.7	N	Ford	4	Eat 1450	SFd	H	6.5-9.02	Ford	F6IHV	501	836	a	TX	83	7½x3x	C
52	(c)TRF-2X250 2F	1813	122	241	23000	5950	7.00/20xD	8.25/20	Ford	8-3⅛x3¾	239	6.2	170	95-3600	3-2.5x4.7	N	Ford	4	Eat 1350	SFd	H	5.83-8.57	Ford	F6IHV	501	836	a	TX	81½	7½x3x	C
53	(c)TRF-2X400 2F	2079	123	242	27000	6050	7.50/20xD	8.25/20	Ford	8-3⅛x3¾	239	6.2	170	95-3600	3-2.5x4.7	N	Ford	4	Eat 1450	SFd	H	6.5-9.02	Ford	F6IHV	501	836	a	TX	83	7½x3x	C
54	(c)TRF-4XF26F 4R	2130	143	210	26000	6600	7.50/20xD	8.25/20	Ford	8-3⅛x3¾	239	6.2	170	95-3600	3-2.5x4.7	N	Ford-0	8	Ford	SFd	H	6.88-7.87	Ford	F6IHV	501	836	a	TX	67¾	7½x3x	C
55	(c)TRF-4XF29E 4R	2342	143	210	29000	7200	7.50/20xD	8.25/20	Ford	8-3⅛x3¾	239	6.2	170	95-3600	3-2.5x4.7	Y	Ford-0	8	Eat 1350	SFd	H	6.88-9.56	Ford	F6IHV	501	836	a	TX	77¼	7½x3x	C
56	(c)TRF-4XF27F 4R	2280	117	180	27000	6720	7.50/20xD	8.25/20	Ford	8-3⅛x3¾	239	6.2	170	95-3600	3-2.5x4.7	N	Ford-0	8	Ford	SFd	H	6.88-7.87	Ford	F6IHV	501	836	a	TX	67¾	7½x3x	C
57	(c)TRF-4XF30E 4R	2583	117	180	30000	7380	7.50/20xD	8.25/20	Ford	8-3⅛x3¾	239	6.2	170	95-3600	3-2.5x4.7	Y	Ford-0	8	Eat 1350	SFd	H	6.88-9.56	Ford	F6IHV	501	836	a	TX	77¼	7½x3x	C

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The Old National Pike is now a part of U. S. No. 1, aptly called, "A Highway of History." General Washington traveled this road repeatedly. It connects the cities that were the first three National Capitals—New York City, Princeton and Philadelphia; and passes near or through all the Revolutionary Battle Fields and many of the Civil War Battle Fields.

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INSTRUMENTS

(CONTINUED FROM PAGE 23)

between the diesel and gasoline engines. Mr. Haskins was cagey in answering the question, "Where should a Diesel engine be used?" He said specific analysis should be made of each case. In the absence of such analysis, Mr. Haskins said the mileage necessary to make a diesel engine economical was 50,000 miles per year.

Vincent C. Young, chief engineer of Wilcox Rich Corp., followed with an illustrated talk which gave the reasons for valve failures and how to recognize them. He pointed out that the one thing that escapes most shop men in valve maintenance and causes early failure is neglect to determine if the valve spring end is square with the valve stem so that the spring will not contribute to valve side thrust.

F. H. Schell, sales manager, Black and Decker Mfg. Co., gave a short talk on valve maintenance which was really an introduction to a demonstration that was given to the audience in small groups with a complete set of shop equipment, which was set up and ready for demonstration during the week.

For the final session of the day J. T. Fitzsimmons, Delco Remy, gave one of his chalk talks on ignition. If these talks are not famous in the industry they should be because Mr. Fitzsimmons is amusing as well as educating. He is the maintenance man's equivalent of Edward S. Jordan.

Among the pointed remarks made by Mr. Fitzsimmons were that contact point pitting was usually the result of design of the whole ignition system and very seldom the effect of one faulty part; that too many contact points were changed because of pitting when a moderate amount of pitting and oxidation did no harm so far as he was able to determine; that the exact quality of the spark had a great deal to do with performance. He warned his audience to beware of oil in the distributor because it shortens life of all distributor parts.

The following morning Mr. Gay continued with some comments on gasoline and showed the gasoline flame characteristics prepared by the Ethyl Gasoline Corp. These movies, made in slow motion many times slower than the usual slow motion pictures, graphically illustrated what happens in the combustion chamber when detonation occurs and compared it with correct performance.

J. Norman Spawn, U. S. Indian Service, recounted his experience in training 5000 employees of this governmental branch who drive as a part of their work. One coordination test which has table space upon which to trace a simple design when your hand and pencil are hidden from direct sight by a shelf and visible only by looking into a mirror provided lunch hour recreation for some of the audience. He said his driving test includes driving 200 ft. with both left wheels and then both right wheels of the car on a marked line and then backing up on the same line. To make it more difficult he finishes with a course set out with nine flags 25 ft. apart through which the driver must zigzag, first forward and then backward.

V. O. Hutton, chief engineer, Cambridge Instrument Co., explained the workings and applications of exhaust

(TURN TO PAGE 60, PLEASE)

BE SURE to TEST this TIRE!
This is the Tire that has the whole Tire Industry Buzzing!
That's all we ask—just take this tire and give it the "works"—and if it doesn't top any tire you are using—we'll be mighty surprised!
The three greatest improvements in modern truck tire construction—(all pioneered by Pennsylvania) are combined in this great tire—(1) Super Pressure Curing (2) Dual-Purpose heat-retardant Tread (3) Extra Duty Supertest Cord.
Test this tire—judge it by results—you'll find it's a standout!
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Challenge your hardest tests!

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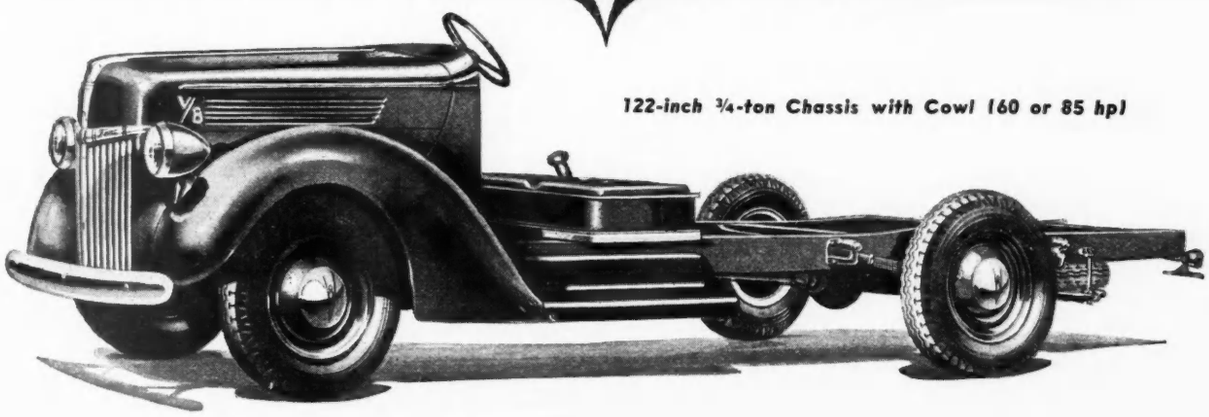


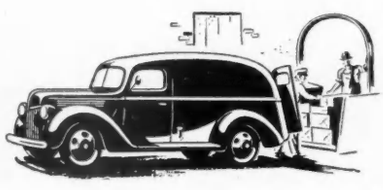
122-inch ¾-ton Chassis with Cowl (60 or 85 hp)

PUT the kind of body you need on this Ford chassis, and you've got a truck that will serve you long and economically.

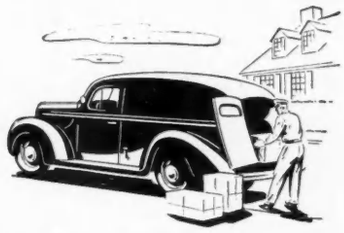
That much could be said of last year's Ford Truck, and of all Ford Trucks before it. But the '40 is the best of them all, with fundamental improvements that reduce up-keep costs even further.

Besides the new simplified chassis, new driving system and new longitudinal front springs on the trucks, all 1940 Ford units are distinguished by many other new features and refinements that make them better values than ever before.

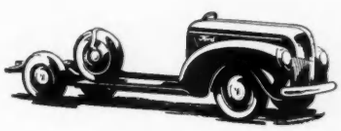
If you haven't tried a Ford recently, call up a Ford dealer and ask him to send some literature or a representative. Discover for yourself the improvements that have been made — and how they mean more work, in less time, at lower cost, on your job.



134-inch Panel. Ideally suited for the heavier types of delivery service. Body capacity, 190 cubic feet. Body sides double-sealed at floor with felt and rubber. Tongue-and-groove flooring.



Sedan Delivery. Perfectly at home on house-to-house routes in the most aristocratic neighborhoods. A real prestige builder anywhere. Finger-Tip Gearshift on steering column. Controlled Ventilation, de luxe front end. Interior lined and insulated.



112-inch Chassis with Cowl. The backbone of many a busy delivery fleet. With special bodies, these units are just the thing for multiple-stop retail routes. Good-looking and economical.

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(CONTINUED FROM PAGE 58)
gas analyzers. He got ample support from other speakers in his contention that exhaust gas analyzers are a valuable tool when used correctly. From Mr. Hutton's comments and those of the other speakers the conclusion could be drawn that most failures of exhaust gas analyzers to prove useful were caused by improper use by untrained mechanics.

Finishing the day's sessions Merrill C. Horine and D. C. Fenner, Mack-International Motor Truck Co., gave a dialogue designed to give an inkling of what the future development of trucks will be. The main conclusion that could be drawn was that if the truck business could be pulled out of politics and allowed to develop without the constant attacks of legislatures and railroads, some sensible prognostication could be made. As it is, the Mack men were willing to bet on better transmission of power from engine to drive wheels, refinements in powerplants and greater maintenance accessibility.

The following morning Robert Cass, White Motor Co., talked on the development of engines. One of his conclusions was that engines of a given displacement will cost more in the future than they do now but the cost will be less per horsepower. Mr. Cass likes the six-cylinder engine for truck work for the long pull and he looks for an abrupt change in manifolding and hopes for an improvement in carburetors. His thoughts indicated solid if unspectacular improvements in every phase of engine development.

Paul Lane, research engineer, American Hammered Piston Ring Co., outlined what piston rings could reasonably be expected to do and what they could not be expected to do.

Before the afternoon was over Mr. Gay gave some results of the San Bernadino gasoline tests on heavy equipment. The test covered 95,000 miles using the same truck and engine but with compression ratios of 4.45 to 1 and 5.65 to 1. A difference of eight octane numbers in the fuel was required for these two ratios.

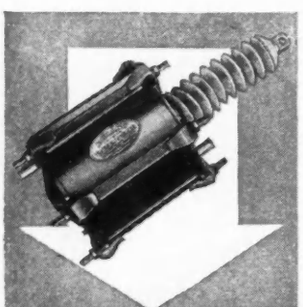
The increase in compression ratio made it possible to increase payloads from 62 per cent to 94 per cent for a given average speed over the same test routes. In the second series of tests the fuel savings ranged from 9 to 17 per cent.

After the dynamometer demonstration on the last day, the balance was spent on miscellaneous subjects, largely catching up on questions that had been asked by members of the audience. During this period tension wrenches were indorsed as a means of preventing engine distortion and the method of tightening cylinder heads was outlined. The conclusion was that this subject was not thought important enough by most shop men to receive the study it deserves.

Temperature control was found to be desirable since not much could be done about engine efficiency until the operating temperature had been stabilized in a desirable range. Part of temperature control is the periodic cleaning and flushing of cooling systems and this preventive measure received unqualified support.

Detonation came in for some attention. Low octane gasoline is only one of the causes of pinging. The other causes are excessively hot engine operation and faulty adjustment of the spark.

"I'VE BEEN MAKING FASTER RUNS SINCE WE PUT ON THOSE *Midland Power Brakes*"



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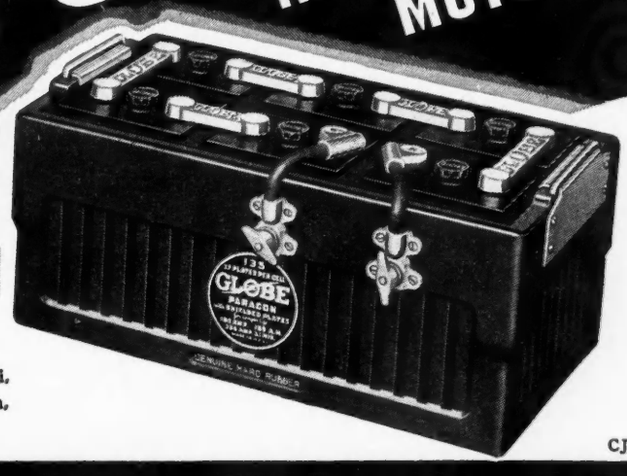

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HYPOIDS

(CONTINUED FROM PAGE 25)

would fit not only the passenger car but the truck—one that might also suit the transmission, at least in passenger cars.

In general, however, and until the whole thing is straightened away, the fleetman must be unusually careful in following the recommendations of the manufacturer, in the interest of trouble-free operation. We quote below, in part, from the service bulletin issued by Chrysler Corp. on this subject:

"The hypoid rear axles used in some of our commercial cars and trucks, require a different type of hypoid lubricant than the active type which has been generally used in passenger car hypoid axles in the field during the past several years.

"On account of the different lubrication requirements of a truck hypoid rear axle from a passenger car hypoid rear axle, these lubricants will probably in the future become known as:

1. Truck Duty Hypoid Lubricant, and
2. Passenger Car Duty Hypoid Lubricant.

"If this nomenclature should become adopted by the oil industry, these lubricants can be differentiated by the copper strip test. By this is meant that if a polished copper strip is placed in the hypoid lubricant for about 30 minutes at normal room temperature, and the copper does not turn black, the lubricant is known as the inactive type. The copper may become slightly discolored or tarnished, but does not become coated with a black substance. Hypoid lubricants which turn copper black under these conditions have been generally known in the past as active hypoid lubricants.

"It must not be interpreted that any lubricant which does not blacken copper is a satisfactory truck hypoid lubricant. There are some so-called mild extreme pressure types of lubricants which are inactive to copper, but which are not considered satisfactory for hypoid gears. This simple test is, therefore, mentioned in this bulletin only to definitely avoid the possibility of the active hypoid type of lubricant being used in truck hypoid rear axles. The oil company's reputation is the best guarantee of uniformity and suitability.

"The truck duty hypoid lubricant (inactive type) may be used in either the truck hypoid or spiral bevel axle, or the passenger car hypoid or spiral bevel axle, but in no case should the passenger car duty hypoid lubricant, if it is the active type, be used in truck hypoid or spiral bevel axles, even though it is satisfactory in passenger car service."

Under present conditions, the fleetman has one of two choices of lubricants depending upon the nature of his equipment:

a. To stock and use two types of hypoid lube—one for passenger cars only, the other exclusively for trucks.

b. To select a "universal" hypoid gear lube which can be used on any vehicle for any manner of service.

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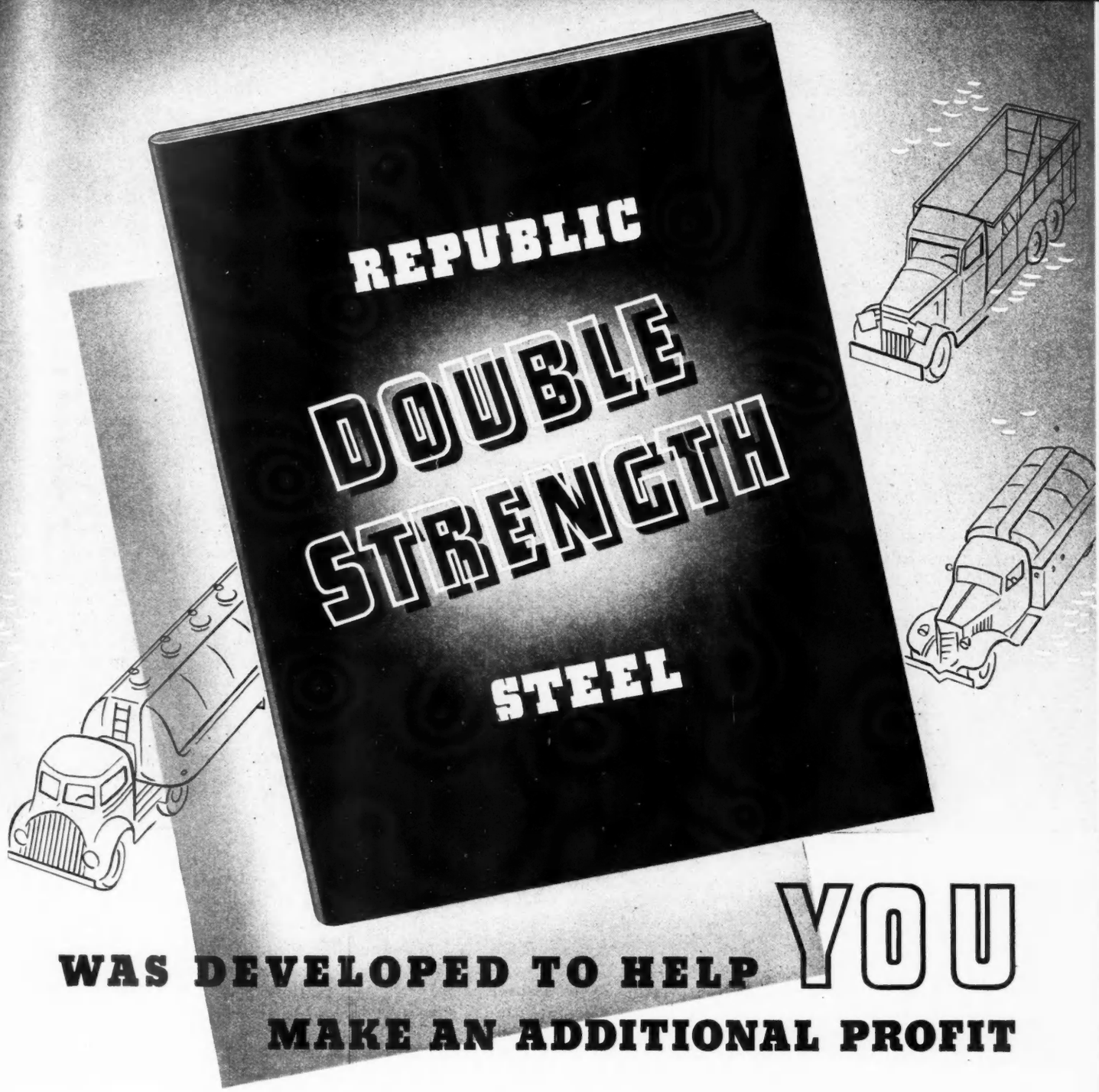

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Weight-Saving · Stronger · More Corrosion-Resistant

BALANCE

(Continued From Page 24)

links to fail were those nearest the catch where the weight was concentrated. The weight consists of the two catches and the two adjacent links which, depending upon exact tire size, may be spaced closer than the other cross links.

To get into the actual test records.

No. 13 cross link, which was next to the catch on one make of chain. failed at 113 miles. It was replaced and failed again in another 37 miles. This was repeated at the following intervals of 122 miles, 39 miles, 110 miles, 30 miles, 149 miles, 32 miles, and 29 miles.

During the same test No. 1 cross link, adjacent to the catch on the other side, failed at 184 miles and again at 120 miles, 64 miles and 236 miles.

While these dire things were happening to the links adjacent to the catch, No. 12 link failed at 548 miles and again at 129 miles.

While seven of the other cross links were badly worn during this period not one of them actually failed once. This seemed to show conclusively that the wear took place at the point that was out of balance.

Just to add to the evidence the results of another test were

No. 13 cross link failed at 265 miles and again at 42 miles, 144 miles, 125 miles, 69 miles, 102 miles and 193 miles.

No. 12 cross link failed at 451 miles and again at 163 miles.

The other cross links survived the test period with only two of them being near the end of their useful lives, none actually failing.

There were other tests but they all showed the same thing with monotonous regularity. The cross links at the heavy point in the chain pulled away from the tire in operation and struck the road with greater force than those that hugged the tire. So-called stretchers did not change this action because the force that pulled the heavy point away from the tire was far too great for a stretcher to have appreciable restraining effect.

As a result of these tests the Atlantic Refining Co. has some very definite ideas about chain maintenance. Replacing broken cross links with new ones throws the chain further out of balance than it was before the failure because a new cross link weighs more than a worn one and because the breakage occurs at the already heavy point. Thus a new cross link at this point will cause more rapid destruction than ever. To cover the maintenance phase of chain life Atlantic Refining has issued the following instructions.

1. Do not install two new cross chains in successive positions. Where it is necessary to replace cross chains in successive positions it is better to install one new chain and remove a worn chain from the opposite side of the wheel for a replacement in the succeeding position. Install a new chain where old one was removed.

2. The first and second replacement cross chains in a new set should not be new cross chains but worn ones taken from approximately the opposite side of the wheel from where the breaks occurred. These vacancies should then be filled with new.

3. When half the original cross chains in a set have been replaced it is better to replace all well-worn cross chains with new ones. The worn chains to be used for future replacement or for rebuilding other sets in similar condition of wear.

For future development and testing Atlantic Refining has ordered some chains with 19 cross links instead of the usual 13 cross links in 9.00/22 chains. There is every reason to believe that the life of these chains will be considerably longer than present chains. If in the 19 link chain there is the same concentration of weight at a given point because of catch and cross links spaced too closely as there is in a 13 link chain, the chain will not be so far out of balance as the 13 link chain. While the concentration of weight is the same, it represents a smaller portion of the total weight of the chain and therefore will throw it less out of balance.

In case this outline of testing by a fleet operator has led you to believe that the chain manufacturers are unaware of the importance of balance, it has created an erroneous impression. One manufacturer—as shown in the illustration used with this story—has a wheel synchronized with a stroboscope and when an unbalanced chain is put on the wheel and put into motion it is possible actually to see the cross links at the heavy point pull away from the tire.

TEMPERATURE

(Continued From Page 29)

perature there would be some drop but not nearly so much as most fleets show on the records. Actually there may be as much as 5 per cent more miles per gallon in the summer fuel than there is in the winter fuel, the 5 per cent being sacrificed for the ability to start with a cold engine and to make the warm-up period less painful. This is all necessary for the private motorist but for the fleet operator who is in position to control temperature, the heavier fuel is more economical. Whether or not a fleet operator can buy specification fuel is probably a matter of how much he buys, and is an arrangement between the operator and the refiner. Regardless of the fuel used, close control of temperature will be rewarded with more miles per gallon.

Perhaps the greatest economy affected by temperature control is the reduction in engine wear. There are reams of evidence to prove that the time of greatest wear in an engine is during the warm up period and periods of idling with the engine below normal temperature. The moisture which results from the ignition of the gasoline condenses on the cold surfaces of the internal parts and forms acids which corrode the surfaces and make them an easy prey to friction.

There is certainly no secret about the fact that lubricating oil becomes diluted rapidly when used in a cold running engine. Every operator who has had experience with cold running engines knows that. Likewise they know that cold running engines produce sludge and water emulsion at an alarming rate. At normal temperature the oil filter will operate but at low temperature it will not.

Fleet operators who have really worked on temperature control have found that the first step is to make sure that the thermostats with which the engine is equipped are functioning. That is to make sure that they are opening and closing at the correct temperature. They can be tested by removing them from the engine and placing them in a pan of water which is heated. As the temperature of the water rises it is easy to check with a thermometer and see if the thermostat shutters open at the correct read-

(Turn to Page 66, Please)

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Chevrolet, Diamond T, Federal, GMC, International and White Trucks; Buick, Cadillac, Chevrolet, La Salle, Nash, Oldsmobile, and Pontiac motor cars; Allis-Chalmers, Cletrac and International Harvester Tractors... these are some of the well-known trucks, cars, and tractors which use AC Quality Spark Plugs. Trust your spark plug requirements to the same brand of spark plugs which the leading, big-volume manufacturers select.

WHAT HAPPENED—

(A freight hauler's history). The electrodes on the plugs being used were wearing very rapidly. Severe service was complicating the situation. Tests were run with AC Spark Plugs to check the correctness of the heat range. It was found that the trouble was resulting from use of too hot a plug. A cooler AC type satisfied this hauler completely.

WHY AC'S SOLVED THE PROBLEM—

Frequently, the type of spark plug capable of giving good service under normal operating conditions runs into difficulties when those conditions change. In this operator's case, that was what had occurred.

AC Spark Plugs were able to cure the trouble because these plugs are built for just such problems. AC's are made in a *complete* Heat Range. The AC Heat Range, as a matter of fact, is so complete in its coverage of all engine operating conditions that we have never found a spark plug trouble that AC's couldn't lick.

The AC "formula" for satisfaction holds good:

1 Standardize on the right *make* of plug
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Follow this, and you'll get *full* satisfaction.

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AC CLEANER—Cleans faster and better; cleans and dusts in one operation; available with or without stand.

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(CONTINUED FROM PAGE 64)

ing. As the water cools the closing can be checked.

The reason that thermostats rank first is because they speed up the warm up period by by-passing the radiator until operating temperature has been reached. They do not seem to be as effective as radiator coverings or shutters for general operation but then most measures have to be supplemented by other steps to control temperature.

Covering the radiator is one of the most effective methods of raising the temperature. Radiator covers range all the way from thermostatically operated shutters to tailored canvas or pantasote pieces with zippers down the middle to permit graduated openings. In between are manually operated shutters and theoretically they should be the best covering, but if they are used the operator must make up his mind that he has to depend upon driver personnel and must train drivers accordingly. Because of this dependence upon drivers some fleet operators prefer the thermostatically operated shutter.

A lower cost means of covering the radiator is the fabric covering which can be adjusted by means of a zipper or snaps. One west coast operator uses regular window shade rollers to wind his covering on and holds it at various stages with hooks.

Usually Florida is thought of as a winter playground with no cold weather worries. Even in this desirable climate a fleet operator in Miami pulled the fans off his transport trucks some years ago and has operated more satisfactorily as regards gasoline consumption since. In Dallas, Texas, another fleet operator has trimmed fans on his multi-stop trucks and his miles per gallon have increased on the same trucks on the same routes. There are many types of operation where the fan can be removed or trimmed to good advantage. The cost of doing this is practically nothing. All it takes is some careful study to reach a solution.

On the west coast an operator has trimmed water pump impellers with success. This operation seems to be more tricky than modifying the fan. This success occurred in San Francisco where the lowest atmospheric temperature reached is about 40 deg. Also on the west coast is a commercially manufactured variable pitch fan which draws more air when the engine is hot than when it is cold.

Numerous fleets jacket the oil pan with insulating material covered with sheet metal. This not only aids in keeping the oil up to operating temperature when the engine is running but it makes for easy starting even with heavier oils after reasonable periods of standing in cold weather. It also helps considerably in keeping the oil in good condition in vehicles that idle for lengthy periods.

In a very severe case it has paid a fleet operator to run an external oil line through an exhaust manifold stove. This was done in Milwaukee on multi-stop trucks. Ventilating the crankcase is especially important in cold weather because the warm up adds rapidly to the supply of undesirable elements in the oil pan and only through the warm operating periods can they be expelled. With more material to be carried off it becomes more important to see that the carrying apparatus is working at highest efficiency.

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RESERVE

(CONTINUED FROM PAGE 35)

that any attachments which were capitalized when added to the unit. and which are subsequently removed in favor of the "betterment," that such values must be deducted from the property account and also proper adjustment made in the reserve for depreciation, through account No. 5091, Depreciation Adjustment. The rate of depreciation applicable to "betterments" may be much higher than applicable to other items of "cost" in the unit, if the "betterment" is so intimately related to the original units as to render its retirement simultaneous with that of the original unit. The life of the "betterment" is usually limited to the remaining life of the unit to which the "betterment" was made.

However, if the "betterment" is such that the unit bettered has a "service life" expectancy fairly comparable with a similar new unit, then the old property is written off the books and the reserve for depreciation cleared through the depreciation adjustment account, and the accounting treatment for the bettered truck is that prescribed for new equipment. The I. C. C., in the Uniform System of Accounts, prescribes that no expenditure may be considered as "betterment" if such expenditure is less than $50, or if the "service life" is less than one year. This rule also applies to any unit of revenue property acquired.

Illustrating accounting treatment for depreciation on "betterments," it may be assumed that the truck, whose "service value" for depreciation purposes is $1,375 before the "betterment" was made, is subjected to "betterment" to the extent of $250 at the end of the second year of "service life." At such a time the unit would have accumulated a depreciation reserve in account No. 2521 to the extent of $550. If the addition of the "betterment" should increase the "salvage value" to $175 at the expiration of the original retirement date of the unit, the new "service value" of the better unit would be, from date "betterment" was made, $1,050, to be retired over the remaining three years, or a depreciation expense of $350 per year for each remaining year. ($1,525 less $150, original "salvage value," plus $250, "betterment," less $25 additional "salvage value," less $550, accumulated depreciation reserve at date of "betterment.")

If, in acquiring a new unit, the carrier should give, as a trade-in, a truck, the truck traded-in is regarded as a part payment on the new acquisition to the extent of the allowance, and in no way affects the "cost" of the new unit. If the truck traded-in is not fully depreciated on the carrier's books, then the old unit is written from the books, and the depreciation adjustment is made through account No. 5091. If the allowance on the price of the new unit is less than the "net book cost" of the unit disposed, the difference is a current expense for normal requirements, charged to account No. 5091, on the theory that the depreciation rate was too low. Similarly, if the allowance is greater than the "net book cost" of the truck traded-in, it indicates that the reserve for depreciation reflected in account No. 2521 has been

(TURN TO PAGE 72, PLEASE)

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Look at the mud! Could *your* trucks get through? Marmon-Herrington *All-Wheel-Drive* Fords *can,* and are doing it every day in the week. They perform just as amazingly in deep sand or snow, and climb surprisingly steep hills and grades with the greatest of ease. Safest vehicles built for slippery highways.

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(CONTINUED FROM PAGE 70)
accumulated too rapidly. This adjustment is also accomplished through account No. 5091, Depreciation Adjustment, as a credit, to be later cleared through a credit to the current depreciation expense for the month of the transaction.

If the carrier shall trade one unit of revenue equipment for another one, and no money passing between contracting parties, the truck acquired shall have the same "cost," "service value," "service life," etc., as the unit parted with had upon the carrier's books.

The rate of depreciation, once the "service value" is determined, must be reasonable and in accord with past experience with similar units. If no experience is available, the rate must be a reasonable forecast of the "service life" of the unit. To say how long a truck will be of "service value" is not easy, due to varying conditions, such as maintenance policy of the carrier, intensity of use, overloading, etc. The Income Tax Unit has issued rates which are considered average life expectancy rates for Income Tax computation, and which may also serve as a gage for proper rates for I. C. C. compliance. It must be born definitely in mind, though, that these rates may not be applied arbitrarily, either for Income Tax computation or for I. C. C. compliance. Furthermore, any carrier who has been using rates other than those given by the Income Tax Unit and attempts to abandon his present rates for other rates, whether in favor of Internal Revenue rates or not, may run into no little difficulty. The Treasury Department and the I. C. C. has taken the position that the burden of proof for the propriety of depreciation rates is upon the carrier.

The rates issued by the Internal Revenue Service are:

Trucks costing under $1,000	33⅓%
Trucks costing $1,000-1,500	25 %
Trucks costing $1,500-2,500	20 %
Trucks costing over 2,500	16⅔%
Trailers & semi-trailers	16⅔%

The measurement of depreciation provided by the Uniform System of Accounts shall be accomplished by either the straight-line method or the mileage rate method, with the provision that carriers using the mileage rate method may not accrue, during any calendar year, less depreciation by using the mileage rate method than would have been accrued had the rate of depreciation been the straight-line method. To illustrate, a carrier may use a depreciation rate of 25 per cent on a unit which has a "service value" of $1,000. The annual charge for depreciation expense would be $250 for four consecutive years during which the unit remained in "service life."

The method of handling the depreciation allowance, after it has been calculated, shall be on the reserve method, to be reflected upon any balance sheet of the carrier.

For the sake of thoroughness, it must be stated that there is a difference, unfortunately, in the meaning of "service value," upon which depreciation is calculated, for I. C. C. compliance, and that required for Income Tax computation. It should be kept in mind, however, that the carrier must maintain his books of account as prescribed by the I. C. C., and such accounting treatment of any transaction which must be adjusted

(TURN TO PAGE 74, PLEASE)

These two advantages, very important points in holding down fleet maintenance costs, are outstanding features of JOYCE Two-Post Bus and Truck Lifts:

POINT 1—*JOYCE Lifts provide quickest method of adjustment to any length wheelbase.* This means no time is lost in spotting vehicle over lift. Daily inspections of underbody mechanism promote safety. No other Lift allows inspections to be made so easily and quickly.

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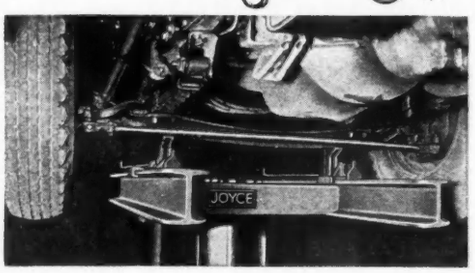

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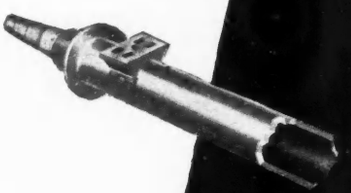

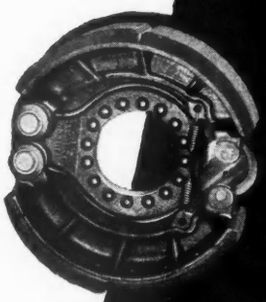

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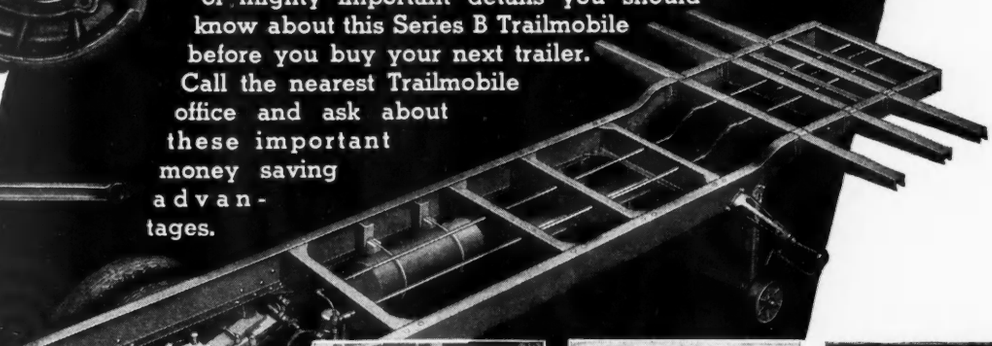

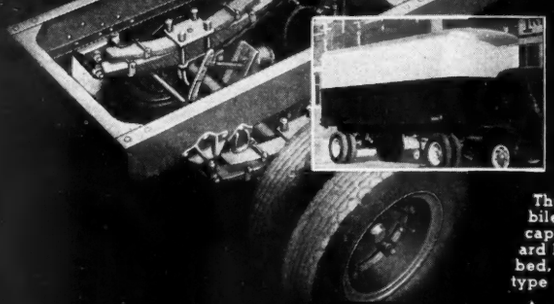

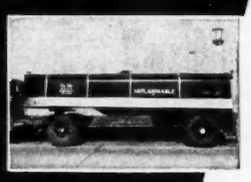

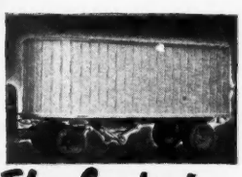

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(CONTINUED FROM PAGE 72)
for income finding under the Income Tax law must be accomplished by work sheet only, and not actually reflected, as such, upon the carrier's books.

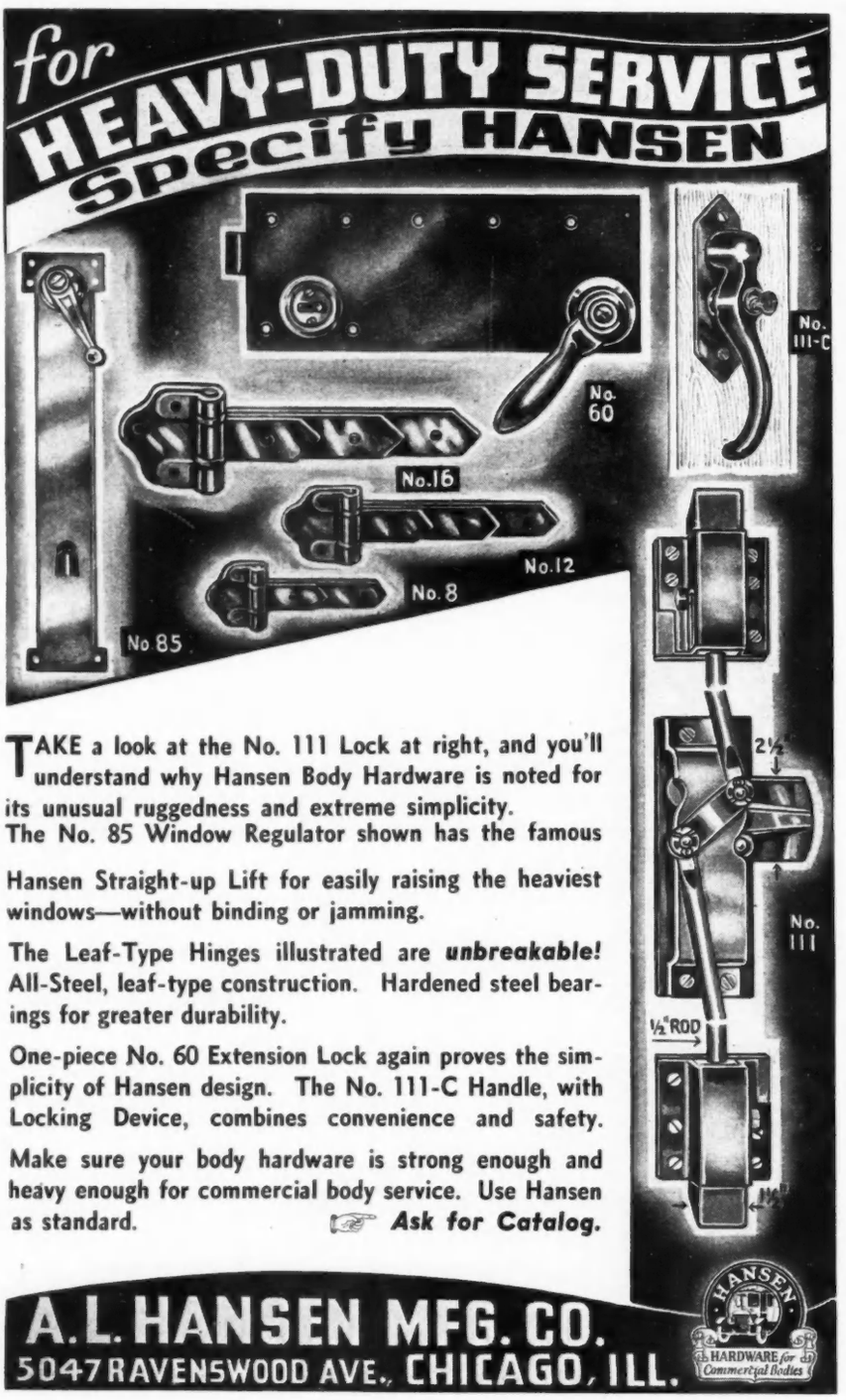
The Federal law for Income Tax purposes provides that the basis for depreciation is usually cost. Cost, under the Income Tax law, is the actual money expended for the property, plus "adjusted basis" of any other good or valuable consideration given as a trade-in. In the words of the statute, the depreciation basis is the "adjusted basis provided . . . for the purpose of determining gain upon the sale or other disposition of such property."

When only the money actually expended is all that is given for acquired property, then the cost as represented by such an amount of money becomes the "adjusted basis" to be used as a depreciation base. To illustrate, a transaction may be assumed in which a carrier may purchase a truck for $2,400. The carrier's experience shows that such a truck may normally be expected to give five full years of useful service, and that at the end of the five-year period the truck shall have a salvage value of $400. The basis for determining annual depreciation rate is $2,000, with an annual expense of $400 being deductible for Income Tax purposes.

When a trade-in occurs, a more complicated calculation arises. A carrier who purchases a new truck and gives money and also a used truck which is not fully depreciated in his hands, the depreciation basis of the new acquisition is calculated by adding to the figure of actual money expended the "adjusted basis" of the truck traded-in. To illustrate the calculation of "adjusted basis," a truck costing $2,400, having a useful life of five years, and a salvage value of $400, may be traded-in at the expiration of two and one-half years. The elapsed or accumulated depreciation would be $1,000 ($400 per year for two and one-half years). Assuming a major mechanical repair costing $89.34 had been made and charged upon the books to the current expense account, No. 4140 (which is proper for I. C. C. compliance), during the second year, this charge must be adjusted upon the work sheet for Income Tax computation to reflect the expenditure as a charge to the reserve account, since such an expenditure is not deductible as an expense for profit finding under the Income Tax law. This deduction from the accrued reserve for depreciation will leave a balance of $910.66 ($1,000 minus $89.34) as a depreciation reserve against the truck at the time of the trade-in. The "adjusted basis," then, is $1,489.34 ($2,400, original cost, minus $910.66, net accumulated depreciation reserve). If this truck and $1,000 in cash are given for a new truck, the depreciation basis of the new acquisition, for Income Tax purposes, is $2,489.34, even though the market value of the new truck may be higher or lower than the depreciation basis. If this new truck, with a depreciation basis of $2,489.34 has a salvage value of $400 at the expiration of five years, then an annual depreciation expense of $417.87 would be deductible for income tax computation of income.

For Income Tax purposes, also, if a carrier shall trade one unit for

(TURN TO PAGE 76, PLEASE)



TAKE a look at the No. 111 Lock at right, and you'll understand why Hansen Body Hardware is noted for its unusual ruggedness and extreme simplicity. The No. 85 Window Regulator shown has the famous Hansen Straight-up Lift for easily raising the heaviest windows—without binding or jamming.

The Leaf-Type Hinges illustrated are ***unbreakable!*** All-Steel, leaf-type construction. Hardened steel bearings for greater durability.

One-piece No. 60 Extension Lock again proves the simplicity of Hansen design. The No. 111-C Handle, with Locking Device, combines convenience and safety.

Make sure your body hardware is strong enough and heavy enough for commercial body service. Use Hansen as standard. ☞ ***Ask for Catalog.***

A. L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE., CHICAGO, ILL.

241,630 Miles in White Super Power Motor—TOCCO Hardened Crank Pin shows only .0004" wear!

● After 241,630 high-speed miles in 14 months over Arizona deserts and Colorado mountains, a stock White Super Power engine (Model 750) equipped with standard Tocco hardened crankshaft was torn down for examination.

Showing a maximum out of roundness of the main bearing of only one-half a thousandth (.0005)—the crank pin, only four ten-thousandths (.0004), this Tocco hardened crankshaft had served 5 to 10 times longer than one hardened by ordinary heat-treating methods.

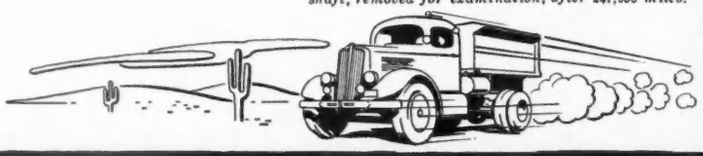
Little wonder that White engines, including the sensational new, air-cooled White Horse, come fitted with Tocco hardened shafts. Tocco helps White users cut maintenance costs "the second hundred thousand miles."

Today, practically all large, heavy-duty trucks and buses—Diesel and gasoline powered—are equipped with Tocco hardened shafts.

Eliminate the necessity of a complete motor overhaul just to fix "an out-of-round" crankshaft.

Specify a TOCCO Hardened Crankshaft in Your New Truck or Bus—and Cut Maintenance Costs!

An unretouched photo of the Tocco Hardened crankshaft, removed for examination, after 241,630 miles.



THE OHIO CRANKSHAFT COMPANY
CLEVELAND, OHIO

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(CONTINUED FROM PAGE 74)

another one, with no money passing between the contracting parties, then the unit acquired has a "substituted basis"—same basis as truck which was traded.

If a carrier gives money and a fully depreciated truck for another unit, and if the allowance on the unit traded-in is more than the salvage value remaining undepreciated, the carrier has received taxable income to such an extent as the allowance exceeds the salvage value, and must report such an amount as income received from retiring property fully depreciated.

Profit finding under the Uniform System of Accounts then is contrasted from income finding for Income Tax calculation to such an extent that items of expense reflected in the depreciation expense upon the books of the carrier may not be fully deductible for Income Tax computation. All repairs short of "betterments" are expenses under the Uniform System of Accounts, but for Income Tax purposes, repairs whose effect extend beyond the taxable year must be deducted from the accumulated depreciation reserve for the unit. The result is, then, that a greater income may be ascertained for Income Tax purposes than is calculated for I. C. C. compliance. This, however, is true in many other lines of business, and is not alarming, except to the extent that complete understanding of both requirements must be had of the chief accounting officer who attempts to prepare the Income Tax return, as well as the keeping of books under the Uniform System of Accounts.

JENNY strips oil base paint from cars and trucks 12 times faster than by hand—and does a better job.

JENNY cleans engine blocks in 10 to 15 minutes. No expensive, hazardous gasoline, kerosene or waste required.

FLEET MAINTENANCE COSTS DROP with HYPRESSURE JENNY on the job!

Fleet owners report startling savings when Hypressure JENNY steam-cleaning replaces old, slow, hand-cleaning methods. Now, cleaning of chassis, engine blocks, running gears, parts, etc., takes only minutes instead of hours. Hypressure JENNY'S more thorough cleaning permits closer inspection; helps keep your trucks on the road, and saves 25% to 40% of the mechanics' time on repair jobs. And clean equipment *looks*, *runs* and *is* better. Find out how much Hypressure JENNY can save for your fleet. Get your free survey by mailing the coupon —no obligations.

HOMESTEAD VALVE MFG. COMPANY
P. O. Box 90 Coraopolis, Pa.

Go ahead—tell us how and how much JENNY can save us.
We have ..... men employed in maintenance.
We repair ..... trucks monthly.
We repaint ..... trucks monthly.
We clean ..... sq. ft. garage floor monthly.
We want to clean .....
Name .....
Address .....

THE ORIGINAL STEAM CLEANER

BODY OF THE MONTH

(CONTINUED FROM PAGE 33)

framing be used with Dry Zero or fiber insulation in the sidewalls and ceiling and sheet cork in the floor.

The exterior panels could be steel or aluminum over plywood or metal-faced plywood with either a canvas or all-metal roof.

The express portion of the body would be hardwood reinforced at points of wear with spring steel strips on the floor and side rails.

The ice cream tank could be made out of either galvanized or stainless steel. All sheet metal trim, such as door steps and flashing where rust will occur, should be of galvanized or stainless steel.

The type of refrigeration used would be optional.

COLOR SCHEMES

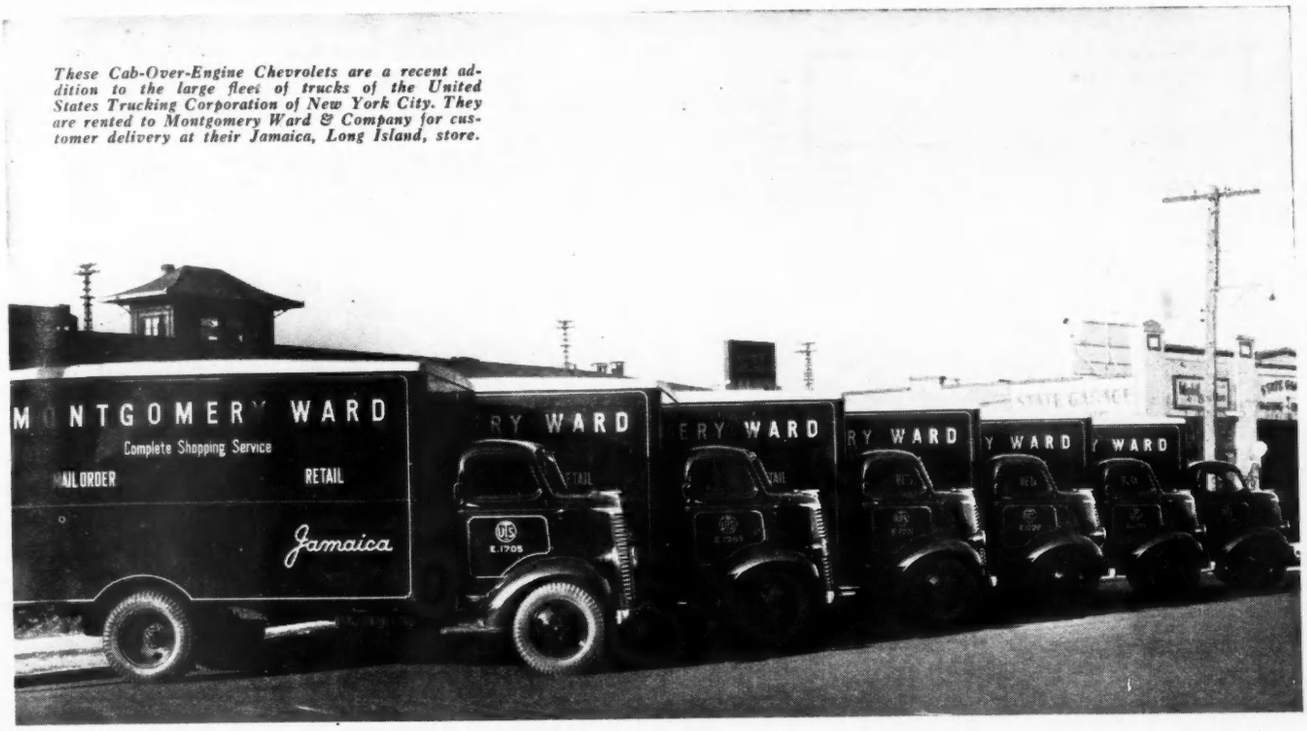
The body illustrated was painted two shades of blue and trimmed with yellow. The top and roof quarters of the body are white with the upper portion of the body dark blue, the lower light blue and the fenders, both on the body and chassis, dark blue. The cab is white above and light blue below the belt line. The wheel belt molding and the outline molding of the upper body panel are all yellow.

AMA Completes Move to Detroit

The Automobile Manufacturers Association completed its move from New York to Detroit on Jan. 1. Headquarters are established in the New Center building where most activities will be concentrated. A branch office in charge of the New York Show and other matters is retained at 366 Madison Ave., New York.

TRUCK BUYERS KNOW TRUCK VALUES

These Cab-Over-Engine Chevrolets are a recent addition to the large fleet of trucks of the United States Trucking Corporation of New York City. They are rented to Montgomery Ward & Company for customer delivery at their Jamaica, Long Island, store.



. . . and when the truck buyers of the nation purchase more Chevrolets than any other make—*that means*

"It pays to buy Chevrolets!"

"Best Haulers—Best Savers—Best Sellers" in the entire truck field. That's Chevrolet trucks! And the fact that they're the *"best sellers"*—the fact that truck users buy *more Chevrolet trucks* than any other make—is conclusive proof that Chevrolets give better haulage service at lower cost! Truck users *know* that Chevrolet's extra-sturdy truck chassis and extra-sturdy truck units throughout mean greater endurance and longer life! Truck users *know* that Chevrolet's famous Valve-in-Head Six-Cylinder Truck Engine gives the maximum pulling power at the minimum cost! And truck users *know* that the nation's preference for Chevrolets is the buyer's guarantee of their greater dollar value. Take the doubt out of truck buying this year—profit by the combined experience of the truck buyers of the nation—choose Chevrolet trucks! Your Chevrolet dealer will be glad to give you a thorough demonstration—*today!*

CHEVROLET MOTOR DIVISION • *General Motors Sales Corporation* • DETROIT, MICH.

ONLY CHEVROLET TRUCKS BRING YOU ALL THESE FAMOUS FEATURES

NEW DE LUXE TRUCK CABS • CHEVROLET'S FAMOUS VALVE-IN-HEAD TRUCK ENGINE • NEW HYPOID REAR AXLE • EXTRA-STURDY TRUCK FRAME • NEW FULL-VISION OUTLOOK AND NEW CRYSTAL-CLEAR SAFETY PLATE GLASS WINDSHIELD • PERFECTED HYDRAULIC TRUCK BRAKES • SPECIALIZED 4-WAY LUBRICATION • NEW SEALED BEAM HEADLIGHTS (with separate parking lights) • FULL-FLOATING REAR AXLE (on Heavy Duty models)

(Vacuum-Power Brakes, 2-Speed Rear Axle optional on Heavy Duty models at extra cost.)

CHEVROLET

More than ever, the "THRIFT-CARRIERS FOR THE NATION"

CHEVROLET TRUCKS

When writing to advertisers please mention Commercial Car Journal

ABILITY

(CONTINUED FROM PAGE 21)

operators to adapt design to get maximum ability under the grade-speed combination selected as the basis of rating. This they could do by selecting rear axle reduction ratios or transmission reduction ratios, or both, to make the maximum power of the engine available at the specified road speed and thus obtain maximum ability for the selected combination of conditions. In a particular operation, such selection of gear ratios might not result in as good average performance under all the varying conditions of operation as some other selection of gear ratios. To the extent that it did not, this method of rating therefore would tend to defeat the objective of minimum performance requirements."

Instead the committee went right to fundamentals and decided that since the two basic factors determining truck ability are gross weight and power, the rating should be a ratio of these two factors. In other words, that the potential ability of a truck or combination should be rated in pounds of gross weight per horsepower.

The question then arose, what horsepower to use? The committee was aware that vehicle ability is determined by the horsepower available at the driving wheels for propulsion, but it chose to recommend, instead, that the brake horsepower delivered to the clutch, or to the clutch equivalent, be used. The reason for this was a practical one. Chassis dynamometers needed to measure power delivered to the driving wheels are not generally available, particularly in the large sizes needed for heavy vehicles, while dynamometers suitable for measuring engine horsepower are relatively common.

Moreover, the difference between horsepower delivered to the clutch and that delivered to the driving wheels is power lost in overcoming friction in the clutch, transmission, joints, rear axle, etc., and while this loss varies with conditions, the variations are not large enough to rule out the use of horsepower delivered to the clutch.

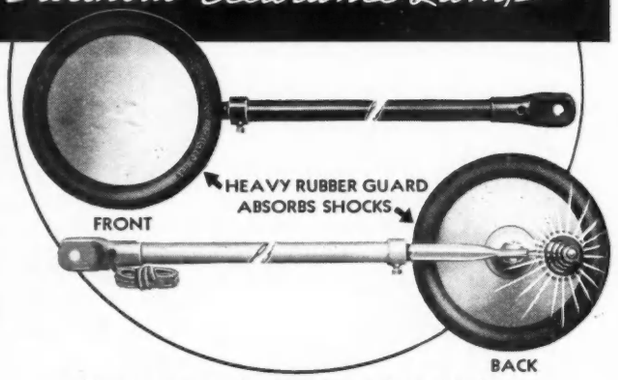
The next question was, who should be the authority for the brake horsepower delivered by a particular engine to the clutch. Should it be determined by formula, by the engine manufacturer or by the truck manufacturer? The first was discarded because there is no accepted formula for figuring brake horsepower. The second was likewise discarded because the engine maker had no way of telling what accessories went on the engine as finally incorporated in the design of a particular vehicle, and of making allowances for the horsepower consumed by those accessories. Furthermore, it was acknowledged that once a vehicle went out on the road the engine maker could not be expected to assume responsibility for the horsepower delivered by the engine to the clutch.

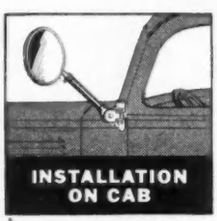
That, it was admitted, was the responsibility of the vehicle manufacturer, and accordingly the committee recommended that the horsepower used in the rating should be established by certification by the motor truck manufacturer.

(TURN TO PAGE 84, PLEASE)

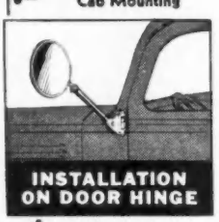
New Safety -Added Protection

in this Super STURDI-BILT
TRUCK MIRROR
with or without Clearance Lamp





Bracket for Cab Mounting



Bracket for Hinge Mounting

Here's a new truck mirror that reduces breakage. The heavy rubber bumper absorbs shocks and the new built-in clearance lamp on the rear indicates accurately the true width of the truck. Adjustable to any position. Sturdy construction throughout—for heavy duty on any truck. Mirror head 6½" diameter overall. Specially processed mirror—backed up with copper coating, held in place by removable rustless metal bezel. Arm can be extended 30" from body. Available with brackets for hinge or cab mounting. Silver luster or black enamel finish.

Ask your jobber or write

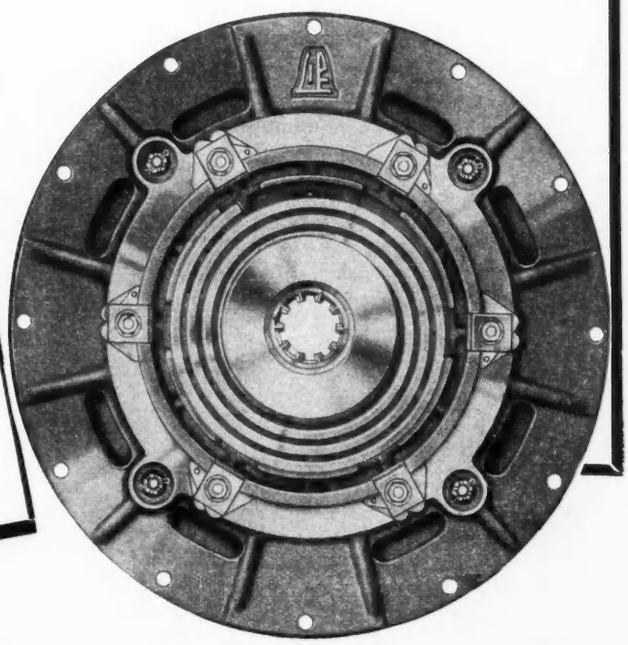
DO-RAY

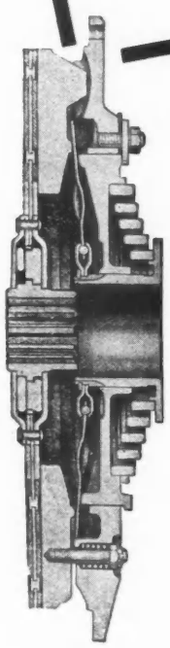
SAFETY LIGHTING AND REFLECTING DEVICES
DO-RAY LAMP COMPANY
1458 S. Michigan Ave., Chicago

Cut Out the Wrack and Strain of Slap-Bang Clutch Engagements!

LIPE HEAVY DUTY CLUTCH

- Avoids Shock-Loading
- Saves Tear-downs
- Adjusts for Wear
- Gives Longer Life





FOR uninterrupted service and low maintenance cost, operate your trucks with Lipe Heavy Duty Clutches. Because of Lipe's exclusive "non-shock loading" method, *every square inch of friction surface picks up the load.* The pressure plate contacts the driving disc in an absolutely parallel plane at all points, always. There is no chance of excessive friction in certain spots —therefore: (✓) no spot heat to cause burning; (✓) no grabbing; (✓) no sudden strain on clutch parts, transmission, drive line, differential, rear axle shafts.

Lipe engineers have had years of practical field experience on many different types of trucks and truck operations. This vast source of information is available to you. Through using Lipe Heavy Duty Clutches on your trucks you can be assured of *more engagements, better action, longer life* and *lower upkeep!*

The new Lipe Clutch Service Manual is *free* to you for the asking. It shows how simply Lipe clutches can be serviced —and without requiring special tools. Write for your copy TODAY!

W. C. LIPE, INC., SYRACUSE, N. Y.

These LIPE *Heavy Duty Clutch* FEATURES

are of utmost importance to Truck Operators

20 Ball-Hinged Levers distribute the central spring pressure evenly all around the pressure plate.

Pressure Plate Always Perfectly Parallel to Clutch Facings

Constantly Maintained Spring Pressure by Simple Shim Adjustment that Compensates for Lining Wear

Warp Resisting Pressure Plate

Rigid Cast-Iron Construction

Forced Internal Air-Cooling

Low Inertia of Light-Weight Driving Disc

No Special Tools Required for Rebuilding

Complete Stock of Lipe Heavy Duty Clutches Available—Capacity From 160 to 1250 Lbs. Ft. Torque

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(CONTINUED FROM PAGE 82)

"The brake horsepower certified," the committee recommended, "shall be supported by two curves for the engine as installed in the particular chassis model. One of these curves shall show the gross brake horsepower and the other the net brake horsepower delivered to the clutch or its equivalent, with a mark on the latter curve plainly indicating the certified net brake horsepower at the governed speed or the maximum recommended speed of the engine for the particular chassis model."

The committee defined gross horsepower as brake horsepower of the engine with only those accessories and attachments necessary to the functioning of the engine during a test conducted in accordance with procedure prescribed by current S.A.E. Recommended Practice.

Net horsepower was defined as the brake horsepower delivered to the clutch, or its equivalent, with all accessories and attachments functioning (including exhaust pipe, muffler and trail pipe) which are standard or regular equipment on the engine as installed in the particular chassis model. The manufacturer may determine the net horsepower by subtracting accessory power consumption from the gross brake horsepower or by direct test with accessories installed and functioning.

For certification purposes the committee devised a form containing all necessary information which would have to be filled out by the vehicle manufacturer and sworn to before a notary public.

That took care of the horsepower portion of the ability rating but left the "pounds of gross vehicle weight per." The committee rightly took the position that it could not recommend any poundage to serve as a legal criterion because so many of the influencing elements in determining this figure are beyond the scope of automotive engineering. The maximum poundage permissible per horsepower must be established by law or regulation.

The committee properly could go no farther than to recommend that where a minimum performance requirement is adopted, it should take the form of a rule stipulating that no vehicle will be licensed to carry a gross vehicle weight exceeding the product of the legally established pounds per net horsepower multiplied by the net horsepower at the clutch.

Enforcement would be simply a matter of weighing the vehicle or combination to determine whether its gross weight exceeded the weight it was licensed to carry on the basis of its certified horsepower.

All in all, the S.A.E. Motor Truck Rating Committee's ability rating recommendations are simple and clear-cut. Most important of all they do not freeze engine design or vehicle design. In fact engine and vehicle designers are given an incentive to improve current design because every improvement in power output automatically will bring its reward in more pounds of gross weight.

The rating, therefore, is one which should have the support of every vehicle manufacturer and every motor truck user.

Wherever minimum performance requirements for trucks are contemplated, highway officials, legislators

(TURN TO PAGE 86, PLEASE)

Years of SERVICE without BRAKE TIE UPS!

CUSTOM-BILT Brake Blocks for Buses, Trucks, Tractors and Trailers

CUSTOM-BILT SETS for every requirement

Heavy Duty Woven Brake Lining

Long Service with *Dependable* Braking to *keep* equipment rolling and *maintain* schedules *with SAFETY* are two BIG reasons *WHY* more and more Fleet Operators *standardize* on GATKE *Genuine CUSTOM-BILT* Brake Blocks and Liners.

They give *extra* braking power for emergencies—*uniform* holding power at all operating temperatures—*reduced* drum wear—*long* service life with *less frequent* adjustments and *low* cost per mile—for every type of Fleet.

Try GATKE CUSTOM-BILT Brake Blocks or Liners on your next five relines. Let them *show* you *Better Performance* and *Real Economy*.

See the GATKE Jobber near you —or write us.

Gatke QUALITY BRAKE BLOCKS AND LINERS

GATKE CORPORATION 228 N. La Salle St., CHICAGO, ILL.

ONE BAD ACTOR MAY SPOIL THE SHOW···

Make every Engine a Star Performer with—

GENUINE
LYNITE* T-SLOT
LO-EX
REG. U. S. PAT. OFF.
PISTONS

Inferior pistons are out of place in a hard-working engine. Operating costs can make a good showing only when every engine in the fleet turns in a perfect performance.

Lynite T-Slot LO-EX Pistons are the best pistons you can buy. They have low coefficient of expansion, permit close clearances, give maximum heat flow. Their lighter weight reduces bearing pressures, so bearings last longer. Fuel and oil consumption and formation of carbon are less. ALUMINUM COMPANY OF AMERICA, 1916 Gulf Building, Pittsburgh, Pennsylvania.

**Reg. T. M. Aluminum Company of America*

LYNITE LO-EX PISTONS—A PRODUCT OF

ALCOA · ALUMINUM

CAST ONLY BY ALUMINUM COMPANY OF AMERICA

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(CONTINUED FROM PAGE 84)
and regulators should give every consideration to this recommended ability rating method.

To its recommendations the committee appended the following formulas:

Ability Formulas

GVW—Gross weight of vehicle (or combination) in pounds.
S—Road speed in miles per hour.
HP—Power delivered to clutch at road speed S in particular transmission ratio being used.
G—Grade in per cent.

In the following ability formulas, a value of 1.2 lbs. per 100 lbs. of gross weight is used for rolling resistance. Power lost in overcoming friction between the clutch and the driving wheels is taken at 0.1 of the power delivered to the clutch by the engine and an efficiency factor of 0.9 has accordingly been incorporated in the formulas.

$$1.\ GVW = \frac{33750 \times HP}{S(G + 1.2)}$$

$$2.\ \frac{GVW}{HP} = \frac{33750}{S(G + 1.2)} = \text{Lb. per HP.}$$

$$3.\ S = \frac{33750 \times HP}{GVW(G + 1.2)}$$

$$4.\ G = \frac{33750 \times HP}{GVW \times S} - 1.2$$

Road-engine Speed Formulas

S—Road speed in miles per hour.
RPM—Engine speed in revolutions per minute.
r—Tire rolling radius in inches.
R—Total gear reduction = Rear axle ratio x Transmission ratio

$$5.\ S = \frac{RPM \times r}{168 \times R}$$

$$6.\ RPM = \frac{168 \times R \times S}{r}$$

Pounds of Gross Vehicle Weight which 1 horsepower delivered to clutch will pull up various grades at various speeds:

Grade %	Speed—M.P.H. 15	20	25	30
2.0	703	527	422	352
3.0	535	400	321	268
4.0	432	324	259	216
5.0	363	272	218	***
6.0	312	234	***	***
6.9	278	208	***	***

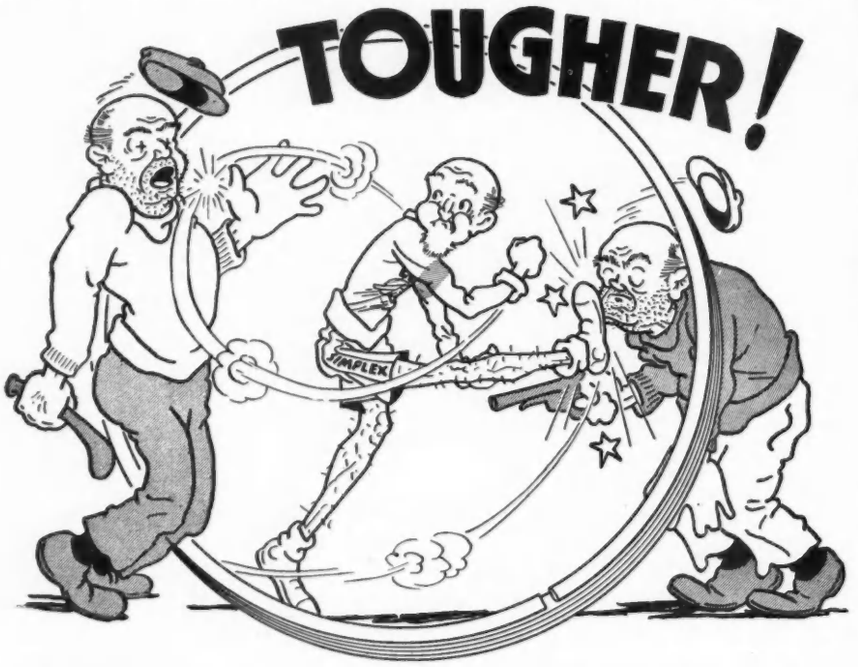
*** Less than 200 lb.

The Motor Truck Rating Committee is made up of the following personnel: F. K. Glynn, American Telephone & Telegraph Co., chairman; B. B. Backmann, Autocar Co.; J. J. Black, Trailer Co. of America; C. J. Bock, General Motor Truck & Coach Division; Clinton Brettell, Surface Transportation; L. R. Buckendale, Timken-Detroit Axle Co.; Robert Cass, White Motor Co.; F. L. Faulkner, Armour & Co.; J. E. Hale, Firestone Tire & Rubber Co.; M. C. Horine, Mack Mfg. Co.; S. A. Jeffries, Studebaker Corp.; J. L. Keeshin, Keeshin Transcontinental Freight Lines; C. W. Kynoch, Dodge Division, Chrysler Corp.; H. K. La Rowe, Dairymen's League Cooperative Association; G. W. Laurie, Atlantic Refining Co.; F. B. Lautzenhiser, International Harvester Co.; F. M. Reid, Fruehauf Trailer Co.; Dale Roeder, Ford Motor Co.; E. M. Schultheis, Clark Equipment Co.; J. C. Tuttle, Goodyear Tire & Rubber Co.; E. W. Winans, Federal Motor Truck Co., and Austin M. Wolf, Consulting Engineer.

QUIZ ANSWERS

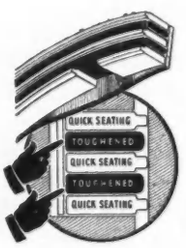
(See page 18)

1. 1a; 2c; 3d; 4b.
2. 1b; 2a; 3d; 4c.
3. 1b; 2c; 3a; 4d.
4. 1c; 2c; 3d; 4d.
5. 1b; 2b; 3d; 4a.
6. 1b; 2d; 3a; 4c.
7. 1a; 2c; 3d; 4b.
8. 1d; 2b; 3c; 4a.
9. 1d; 2c; 3c; 4b.
10. 1d; 2b; 3c; 4a.

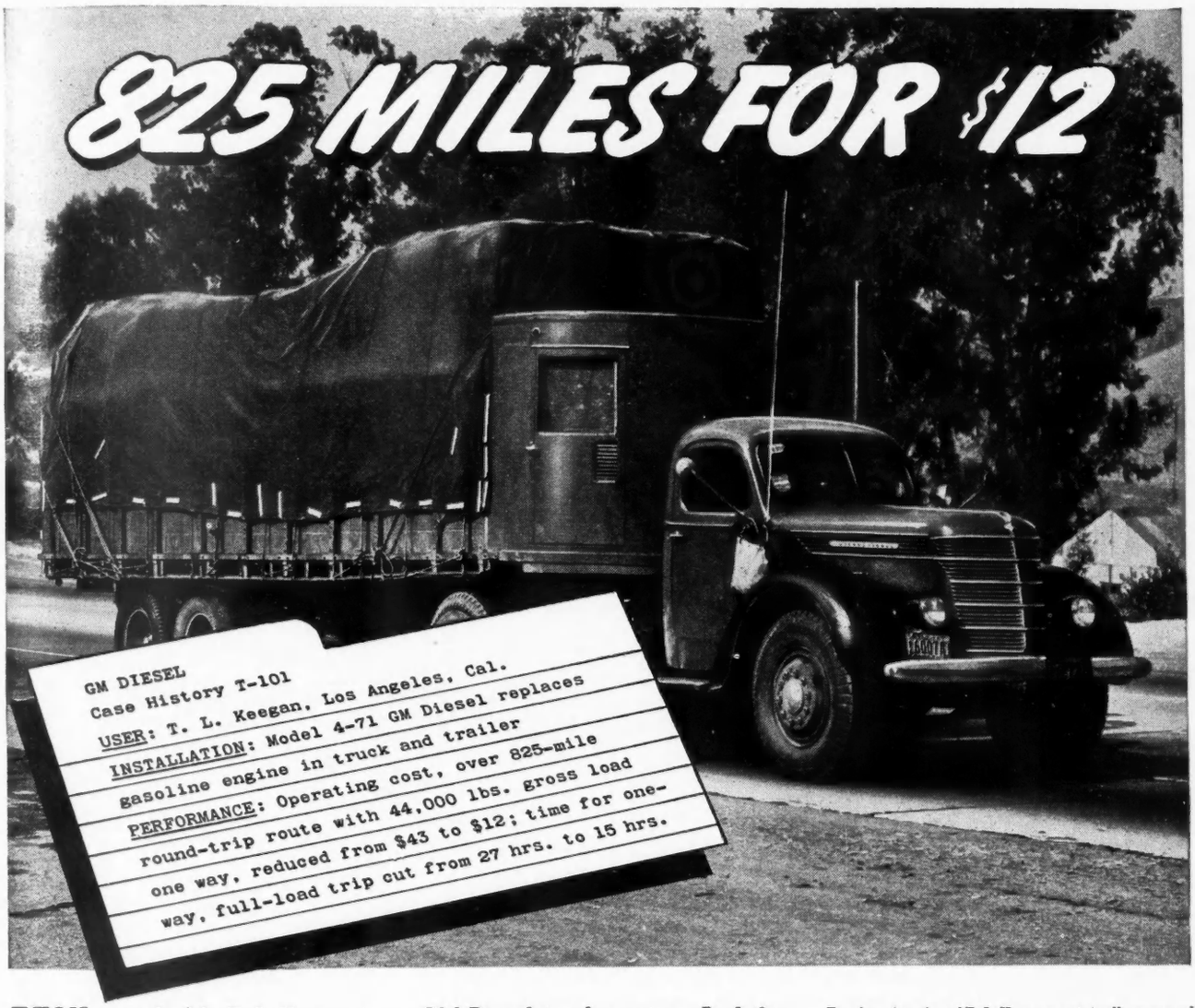


TOUGHER than tough!—and with a punch and kick that lays low piston slap and oil robbery—that's the new Simplex LONG LIFE Ring. It packs a wallop that will convert the worst stumble-bum jallopy into a flying-angel. Streamlined for quick action; toughened for endurance; engineered for proper lubrication and oil saving. Simplex "LL" will lick the toughest job you've got in car or truck. Phone your Simplex distributor for "on-the-piston" service.

The in-between sections of the ring are **tempered** to the correct degree of hardness and **coated** with a non-scuffing surface for the **protection** of the cylinder wall. Assembled to form a ring, the more flexible sections **project** slightly beyond the tougher sections. **Quick seating** is assured. The expander pressure is **only** on these narrow-faced flexible sections, producing a high unit of pressure but with less "drag" because less ring surface is against the cylinder wall. After these faces quickly seat, then the extremely tough sections **prevent further wear.**



SIMPLEX PRODUCTS CORP.
3820 Kelley Avenue • Cleveland, Ohio


825 MILES FOR $12
GM DIESEL
Case History T-101
USER: T. L. Keegan, Los Angeles, Cal.
INSTALLATION: Model 4-71 GM Diesel replaces gasoline engine in truck and trailer
PERFORMANCE: Operating cost, over 825-mile round-trip route with 44,000 lbs. gross load one way, reduced from $43 to $12; time for one-way, full-load trip cut from 27 hrs. to 15 hrs.

YOU can take Mr. T. L. Keegan's word for it.

He hauls his own merchandise from Los Angeles to Prescott—perishable produce that's buried under three to five tons of ice.

Ice melts fast over that route. Time means money. But Mr. Keegan found a way to save them all—ice, time and money—*by repowering his truck with a GM Diesel.*

And here's the way he tells the story!

"I purchased my truck-trailer new in 1937. But after about 70,000 miles of operation, I found my hauling costs were too high—made it possible for others to undersell me on my own kind of merchandise.

"Then I bought my 2-cycle GM Diesel truck engine. And the figures from my own records tell the story.

"With the original gasoline engine, I spent $43 a round trip (825 miles) on gas and oil alone. Now, with that GM Diesel engine, lube oil and fuel costs are down to $12 a round trip.

"And what's equally important is the saving in time. With the gasoline engine it took me 27 hours to haul a gross load of 44,000 pounds over this route. With the GM Diesel engine, I make the pay-load trip in 15 hours—negotiating grades in at least two gears higher speed than before.

"Naturally, with a highly perishable load, every hour of delay might mean a heavy cash loss. I had to have an engine that was absolutely dependable and would cut my running time. In fact, one of my loads is worth $800 to $900 at the produce market. So you can imagine how profitable the GM Diesel engine has been for me."

Truck and trailer of T. L. Keegan, originally powered with gasoline engine, consumed 1 gallon of gasoline every 4 miles, hauling perishable produce from Los Angeles, to Prescott, Arizona. Now powered with Model 4-71 GM Diesel, it not only makes the payload trip in 44% less time, but gets 8 miles per gallon of fuel oil.

• • •

Your nearby General Motors Diesel dealer will give you an eye-opening analysis of your power problem without obligation. Write for his name and address today.

DIESEL ENGINE DIVISION
General Motors Sales Corporation, Cleveland, Ohio

GM GENERAL MOTORS DIESEL POWER

☆ GENERAL MOTORS DIESEL ☆

When writing to advertisers please mention Commercial Car Journal

International Harvester's new Long Island Headquarters (Dec. issue, Page 46) represents the last word in sales and service efficiency. Address, 44th & Northern Boulevard, Long Island City; territory all Long Island north of Brooklyn

"Controlled Speed . . . . . there's the solution to a major problem"

THE control of speed is probably the biggest contribution to economy and safety in the commercial vehicle field.

Truck depreciation is measured directly by the way a driver, (most of whom have little or no mechanical experience—or knowledge of engine RPM in the lower gears) handles his vehicle. Subject to the whims of the driver, the useful life of the vehicle is lessened. Gasoline and oil consumption, tire wear, brake replacements, transmission, axle and chassis trouble—representing actual cash outlay—are all directly involved.

These expenses can be reduced and controlled with Hoof Governors, which may, furthermore, greatly influence insurance rating of the fleet.

Demand governors that allow full power . . . that have full pick up and acceleration . . . that cannot be "cheated." Hoof Governors meet these demands in every respect. With their use you can relax in the assurance that your vehicles are capably protected without sacrificing power or flexibility of operation.

ECONOMY CHECK CHART

If you use governors, you'll want this chart, "How to secure greatest fuel economy from any governor and carburetor combination." It's yours for the asking.

HOOF Cantilever Spring GOVERNORS

HOOF PRODUCTS CO., Dept. HGF, 6543 S. Laramie Ave., CHICAGO, ILL.

Makers of the FAMOUS HOOF CANTILEVER GOVERNORS.

"SCHWAHN SONG"

(CONTINUED FROM PAGE 32)

When a tire is purchased, it is immediately tagged and entered in our tire inventory book. The tag number and inventory number correspond. As soon as the tire is put on a truck, the tag is filled in and sent to the office with the following information: Date put on truck, truck number, serial number of tire, position of tire on truck, speedometer reading, serial number of tire replaced, and reason for replacement. This information is transferred to a card and filed.

From these records we learned that our tires were not giving the proper service. We then took a complete analysis of the fleet. This test showed that almost every tire failure was due to overload. Since then we have put on the proper size tire, and our trouble has vanished. Where we were getting from 20,000 to 25,000 miles on a set of tires, we now have tires that have gone over 40,000 miles and still have a lot of miles in them. Our savings in the tire department amounted to $1078, compared to the previous year's cost.

Few Accidents

As far back as I can check, I can not find where we have had a single major accident. For last year our minor accidents amounted to less than $150.

When a new man is hired, he is given a firm understanding of our demands on our drivers. He must show the utmost in road courtesy at all times as our trucks are our best means of advertising. All trucks are equipped with a governor and checked every 5000 miles. The brakes and steering are also checked in the 5000-mile inspection, and if not in perfect condition the truck absolutely must be laid up until repairs are made. Drivers are required to fill out a weekly report as to mechanical condition of truck, and if a defect shows up during the middle of week, they must report immediately. The savings from these safety practices, we believe, are beyond estimate.

I. Valentine, formerly in charge of Edison-Splitdorf's Chicago office, has been put in charge of the Pacific Coast territory succeeding R. H. Deibler, resigned.

WHEN YOU ADD IT ALL UP YOU GET

Packard
REG. U.S. PAT. OFF
TRADE MARK

500 IGNITION CABLE

YOUR problem of choosing the best obtainable ignition cable for your replacement service is reduced to simple addition by Packard Breakdown Tests. And the summing-up can have only one result, as the above figures show. They prove conclusively that Packard 500 ignition cable has *everything*. This is so because it is the one cable combining the advantages of both the inorganic sheath and a heavy, flexible lacquer coating. In terms of service, Packard 500 resists heat, oil and moisture like the popular Packard 440, and, in addition, it has the high dielectric strength, the resistance to corona and the smart appearance of Packard Lac-Kard cable.

Operators and maintenance men who have discovered the superior performance of Packard 440 will find that Packard 500 has what it takes to give even better results—to stand up longer under all conditions. Make your very next cable replacement with Packard 500. Packard Electric Division, General Motors Corporation, Warren, Ohio.

BREAKDOWN TEST CHART OF IGNITION CABLES

	DRY HEAT	OIL AND HEAT	CORONA	MOISTURE ABSORPTION	VOLTAGE BREAKDOWN
Packard Five-Hundred	Excellent	Excellent	Excellent	Excellent	Excellent
Packard 440 (or 420 steel-conductor)	Good	Excellent	Fair	Excellent	Good
Packard 330 (Blue Syn-Lac-Kard)	Excellent	Fair	Excellent	Fair	Excellent
Packard 344 (Standard Lac-Kard)	Excellent	Fair	Excellent	Fair	Excellent
Packard 325 (Fiberglas Lac-Kard)	Excellent	Fair	Excellent	Fair	Excellent
Packard 324 (Chrome Lac-Kard)	Excellent	Fair	Excellent	Fair	Excellent
Packard 347-B (Multiple-Braid Lac-Kard)	Excellent	Fair	Excellent	Fair	Excellent
Packard 520 (Steel-core, low-capacity)	Excellent	Fair	Excellent	Fair	Excellent
Packard 544-B (Aircraft)	Fair	Excellent	Excellent	Fair	Excellent

This chart tabulates data that represent Packard's 37 years of experience in manufacturing high quality cable, making experiments no longer necessary. In heavy-duty service, all the conditions listed are present to some extent. Standardize on Packard 500 and cut down replacement costs with the cable that meets every requirement.

Packard
REG. U.S. PAT. OFF.
TRADE MARK

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

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LEGISLATIVE LOOKOUT

(CONTINUED FROM PAGE 17)

tax. One plan suggests imposure of gross weight tax on all trucks over 8000 lbs. A second, would exempt for-hire vehicles weighing under 5500 lbs.

The Kentucky Farm Bureau recently adopted resolutions calling for immediate freeing of eight intra-state toll bridges, and holding of weights and sizes of trucks to present limits until roads are improved. The Kentucky Motor Transport Division has prepared alternate plans to extend weight and mileage taxes on a graduated scale to private trucks which now pay only a license fee. Introduction may depend on proposed weight increases.

MISSISSIPPI—Session opened Jan. 2. Only activity so far pertaining to trucking interests concerns itself with separate appropriations for farm-to-market roads. No action to date.

NEBRASKA—Special session convened Jan. 2. Governor Cochran proposes to appropriate any excess of revenue beyond that needed for expenditures listed at regular session for the general state assistance fund. One cent of the gas tax now goes to this fund. Session adjourned Jan. 13. Principal function to amend Unemployment Compensation Law to conform with Federal Statute. Bill approved by Governor, Jan. 17.

NEW JERSEY—Regular session convened Jan. 9. Governor Moore recommended considerable road construction in connection with relief projects. He has also recommended that $2,000,000 of the estimated $43,000,000 expected from motor vehicle revenues should be diverted to emergency relief. A bill which would require proof of financial responsibility before issuance of motor vehicle licenses has been introduced. (H. 28.) H. 32 and S. 14 would reduce driver's license fee from $3 to $1. S. 26 provides for special permits to be issued where load limitations are exceeded.

NEW YORK—Convened Jan. 3. A proposed state-wide sales tax bill (H. 46-S. 13) provides a 3 per cent sales tax which includes new motor vehicles and an additional 2 per cent on the value of the vehicle at the time of application for license plates, the latter also payable on each transfer of ownership. Current session faces strong efforts on behalf of local governments for greater appropriations from the gasoline and registration taxes. Governor Lehman's budget message was expected to ask an additional $10,000,000 for highways.

The following bills have been intoduced: H. 202 would limit the annual registration fee on farm commercial vehicles to $2 and H. 207 would exempt all farm machinery and trailers from fee. H. 139 would make it unlawful after Jan. 1, 1941, to operate commercial vehicles on rural highways week-ends and holidays. H. 163 would extend the unemployment compensation law to every employer of one or more persons instead of four or more. A constitutional amendment proposing the establishment of tolls on the 450-mile barge canal system was introduced, Jan. 11. H. 211 would require motor vehicles manufactured after Jan. 1, 1941, to have two reflectors on the front placed so as to indicate width of vehicle. . . . S. 288 would give first-class villages the power to grant, refuse or limit operations of motor carriers. S. 259 would require inspection of all vehicles more than 5 years old. H. 283 would prohibit sale of retreaded tires unless plainly marked as such.

The Commissioner of Motor Vehicles is in favor of abolishing the junior operators license and of establishing a minimum age of 17 for the senior license. . . . Park Commissioner Moses has abandoned his battle for a bridge from the Battery to Brooklyn and is sponsoring a bill to authorize a tunnel instead.

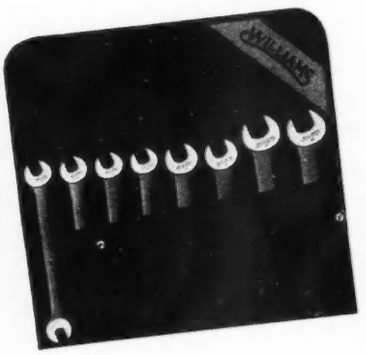
A joint legislative committee on interstate cooperation between New York and Pennsylvania has adopted a resolution assailing trade barriers as destructive of the free intercourse of commerce guaranteed under the U. S. constitution. The resolution also pledged the joint committee to oppose all moves to discriminate against products of each other.

RHODE ISLAND—Regular session convened Jan. 2. A proposed bill (H. 519. S. 20) provides for recording of liens and encumbrances on motor vehicles on title certificates. . . . H. 525 would reduce the

(TURN TO PAGE 92, PLEASE)

WE CALL IT "1042"

MECHANICS CALL IT "A No. 1"



Handy, compact..."1042" is the all 'round set for tackling tappets! Contains 8 tappet "Superrenches" . . . *long enough* to avoid burnt fingers . . . *thin, light* and *strong enough* to do the job quickly, easily.

Each wrench double headed with 15° angle to service 2 sizes of tappets. These DOUBLE DUTY wrenches will take care of practically every cab, bus, car and truck that comes along. Drop-forged from Chrome-Molybdenum steel, heat-treated and chrome finished.

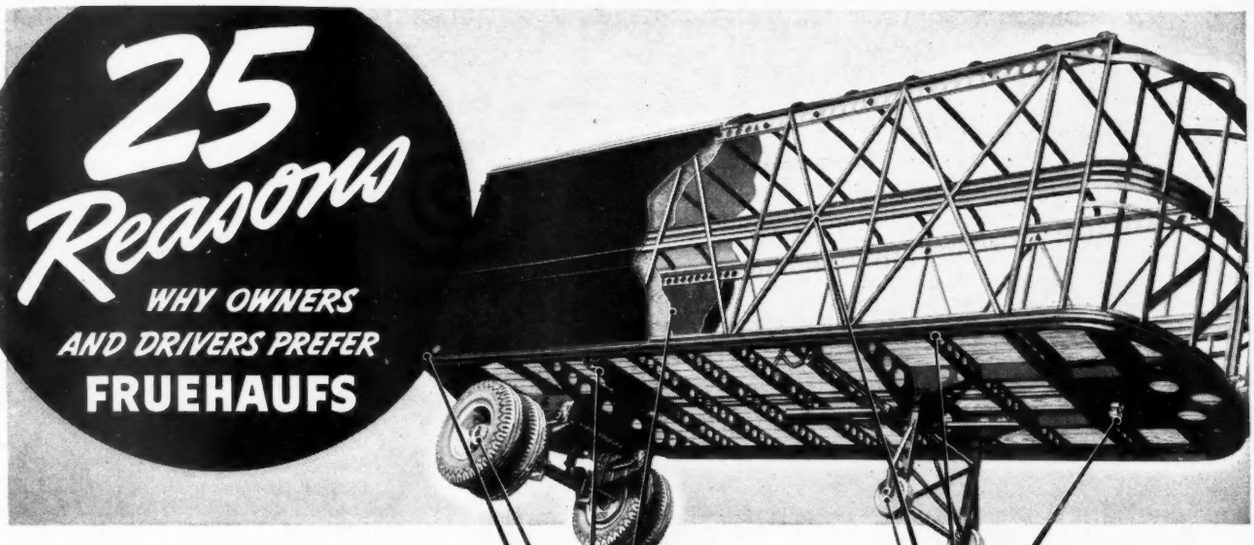
Write for literature of the complete Williams' line including all types of wrenches, pliers, screw drivers, chisels and punches.

WILLIAMS
SUPERIOR DROP-FORGED TOOLS
"SUPERRENCHES"

J. H. WILLIAMS & CO.
"The Wrench People"
225 Lafayette St., New York, N. Y.
Western Warehouse & Sales Office: Chicago
Works: Buffalo

25 Reasons

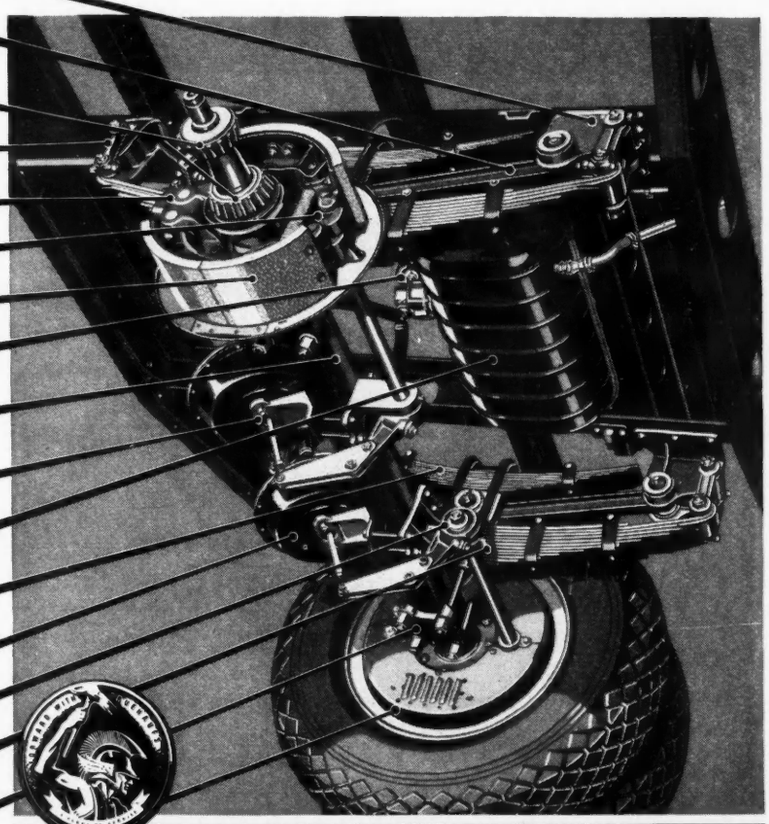
WHY OWNERS AND DRIVERS PREFER FRUEHAUFS



● **YOU'LL FIND** a mighty strong preference for Fruehauf Trailers among both owners and drivers. The reasons are not far to seek. Listed here are twenty-five important Fruehauf features that not only contribute to economy, safety, long life and ease of handling but also prove that Fruehauf "Engineered Transportation" goes full-length in even the smallest detail of design and construction-assurance to you of maximum satisfaction and savings from your investment.

18. **FULL PLYWOOD LINING** protects loads, facilitates loading and unloading.
19. **ONE-MAN TIRE CARRIER** simplifies and speeds tire changing.
20. **DIFFERENTIAL DUAL WHEELS** cut fuel costs 10 to 20%, increase tire life 50 to 100%.
21. **SPACELESS TAILGATE** opens flush with the floor for easy loading and unloading
22. **KING PIN** will support weight of a good sized locomotive—10 to 1 factor of safety.
23. **FRAME-INTEGRAL** construction cuts dead weight, increases strength.
24. **TUBULAR STRUT,** airplane type, body construction—the last word in lightweight strength.
25. **AIRPLANE TYPE SUPPORTS,** straddle mounted for extra strength.

1. **BOX TYPE SPRING HANGERS** for extra strength and rigidity.
2. **RUBBER-MOUNTED RADIUS RODS,** horizontally mounted, maintain perfect axle alignment for easiest pulling.
3. **OVERSIZE HEAVY-DUTY** roller bearings reduce maintenance, maintain wheel alignment.
4. **SHACKLED SPRINGS** increase cushioning of vehicle and load.
5. **TWO ANCHOR PINS,** eccentric mounted, permit correct lining clearances.
6. **S-TYPE BRAKE CAM** protects against drum scoring, provides maximum leverage.
7. **MOLDED BRAKE LININGS,** ground true for perfect braking, long life.
8. **MOISTURE TRAP** protects brake relay valve from failure due to ice.
9. **I-BEAM AXLE.** One piece, double heat-treated drop-forging. Accurately cambered for easy pulling.
10. **SHIELDED TYPE** air vents in brake operating diaphragms keep out trouble-causing dirt and moisture.
11. **3600 CUBIC-INCH** emergency vacuum tank. Safety under all conditions.
12. **MAIN-PLUS-HELPER SPRINGS** provide correct springing, loaded or light.
13. **BRAKE OPERATING DIAPHRAGMS** oversize to provide extra, reserve, braking power.
14. **360° SLACK ADJUSTERS** for ease in brake adjustment. Ball bearing mounted.
15. **CUPPED INTER-LOCKING** spring leaves relieve the center-bolt of all strains.
16. **CAST AND FLANGED** U-bolt plate protects against spring breakage due to loose U-bolts.
17. **BRAKE DRUMS** of special Meehanite alloy, ribbed for maximum heat dissipation.



FRUEHAUF TRAILERS

"ENGINEERED TRANSPORTATION"—REG. U. S. PAT. OFF.

World's Oldest and Largest Manufacturers of Truck-Trailers • FRUEHAUF TRAILER CO., DETROIT • *Sales and Service in Principal Cities*

MORE FRUEHAUF TRAILERS ON THE ROAD THAN ANY OTHER MAKE

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(CONTINUED FROM PAGE 90)

gas tax to one cent and provides that one-third of proceeds be used for relief.

SOUTH CAROLINA—Governor has recommended diversion of part of gas tax for general relief and that highway department turn over $2,000,000 for such purposes. H. 1302 would repeal the 1939 Motor Vehicle Inspection Law.

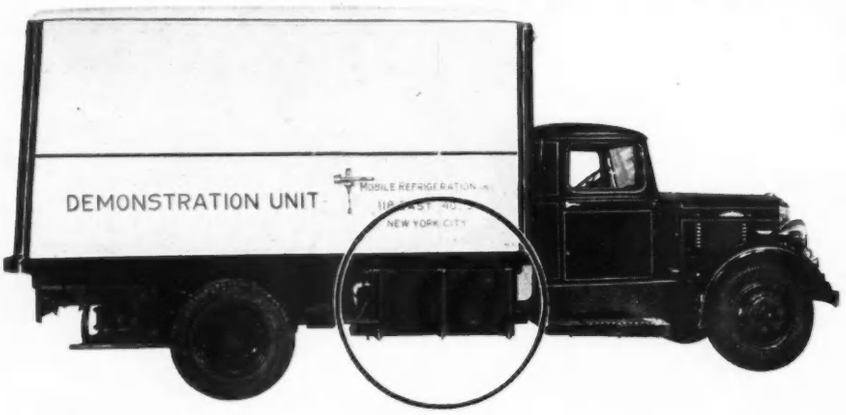
VIRGINIA—Governor has urged stricter enforcement of motor vehicle laws and has asked for a lower speed limit. . . . H. 21 would amend taxation of regular route common carriers. H. 6 would provide that rolling stock of certified motor carriers heretofore assessed by the Corporation Commission shall be assessed for taxation by local commissioners of revenue and local property taxes imposed thereon. . . . A battle on diversion is expected.

State Addenda

In the forefront of the movement to break down interstate trade barriers is a Southern Conference on Interstate problems which was called for Jan. 25 to 27 at Nashville, Tenn. States invited to participate are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia. . . . Previously reported (See New York, above) were efforts to solve disputes between New York and Pennsylvania. . . . Wisconsin and Michigan have settled an 18-year-old dispute with the signing of a reciprocal agreement which permits 90 days for passenger cars and interchange of privileges for private truckers. . . . Virtually complete reciprocity now exists between Iowa and Nebraska, the agreement being drafted largely as an aid to farm truckers and just as we go to press comes word that New York and Michigan have consummated a reciprocal truck agreement which specifies that vehicles licensed in Michigan may operate to or through New York state without payment of license fees so long as traffic is restricted to interstate movements.

The Maine Automobile Association has asked Governor Barrows to call a special session for the purpose of repeal or modification of the controversial certificate of title law before the March 1 deadline for 1940 registration. . . . Illinois Commerce Commission continued hearings on a proposed ban of trucks from State Highways on Sundays; but no immediate action expected, final outcome not reported. . . . Connecticut State Highway Commissioner Cox has gone on record as opposing inclusion of Merritt and Wilbur Cross Parkways in a proposed superhighway from Boston to Washington if such a move meant opening the parkways to trucks.

Illinois truck owners have been reminded that all trucks must have owners name and address printed on side as well as maximum empty weight. . . . Nevada has announced new marked light regulations which conform to I.C.C. Rules. . . . Ohio's State Highway Patrol will no longer issue special excess weight permits. They will henceforth be available from the Columbus Maintenance Bureau. . . . Divorcement of Nevada's State Police System from other state departments, notably tax collection activities, will be considered at the 1941 legislature. . . . Special sessions have been urged in Arizona and Ohio. . . . Wisconsin's Governor Heil has announced a plan to divert $6,051,550 from highway funds during the next 18 months; his Highway Commission has slashed $4,500,000 from proposed expenditures during the period. . . . Connecticut Governor Baldwin has taken a stand against lumping of the highway funds with the general fund.



Announcing

NEW ECONOMY IN REFRIGERATION

The MOBILE REFRIGERATION UNIT, based on an entirely new principle of refrigeration, offers you constantly efficient refrigeration at an incredibly low figure. A self-contained unit that need not be kept sealed; it operates on a 5 HP motor, independently of truck or tractor power units, utilizing propane both as its own fuel and as the refrigerant at a cost of less than 5¢ per hour. Propane, a recent introduction to the refrigerant line, is one of the few gaseous fuels whose inherent qualities afford complete combustion with the resulting elimination of the usual motor ills and engine adjustments.

Where conventional equipment tends to be bulky, expensive and troublesome to maintenance men, the MOBILE REFRIGERATION UNIT requires less space taken from payloads, lower operating cost and can be serviced by any garage mechanic. Priced lower than any other unit in its field due to its simplicity of design, the MOBILE UNIT features . . .

MOBILE'S SEVEN POINTS OF ECONOMY

1 Amazingly low cost automatic refrigeration 24 hours a day.
2 Small quantity of circulating refrigerant, insuring absolute safety.
3 Automatic but variable Temperature Control; circulated air (200 cu. ft. per minute).
4 Use of standard parts produced by reliable manufacturers.
5 Adaptability to specific space requirements, eliminating all loss of payload space.
6 Low-slung installation increases truck or trailer stability.
7 Total weight 650 lbs.

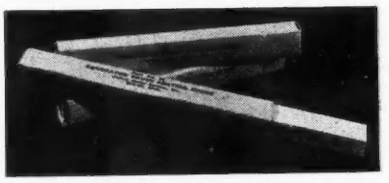
Write today for our descriptive circular.

MOBILE REFRIGERATION, INC.
118 EAST 40th STREET, NEW YORK CITY

Mobile REFRIGERATION UNIT

Brush Seating Stone

Brush noise and rapid commutator and brush wear, due to excessive arcing caused by a poor generator brush seat, are said to be eliminated quickly by the use of a new Delco-Remy brush seating stone. The stone



disintegrates when held against a revolving commutator and particles of the abrasive carry under and seat the brushes in a few moments. Dust is blown out after seat is made. This new item may be obtained through any United Motors Service Station.

NEWS

(CONTINUED FROM PAGE 47)

Getting Personal (Con't)

Russell H. Dragsdorf, for the past several years Dodge truck plant engineer, has been named Dodge truck plant manager, succeeding the late R. M. Hidey. Dodge has also announced the appointment of A. S. Anderson as labor relations supervisor in addition to his duties as special equipment engineer at the truck plant.

J. M. Linforth, who has been named a vice - president of Goodyear Tire & Rubber Co., Inc., Goodyear sales subsidiary. He is in charge of original equipment sales

Glenn Evans, winner of Ace-Driver Contest sponsored by F. J. Boutell Driveaway Co., Flint, Mich.

Jack Prichard, formerly Sales Manager of the Emsco Asbestos Co. of Downey, Calif., has been appointed Regional Manager, Central States Division, for Barrett Equipment Co., St. Louis. I. M. Gregory, is in charge of the Distributor Division of the Central States. New additions to the sales force include O. T. Rankin, Oklahoma; Lou. Simons, North and South Carolina and Virginia; Claude Moss, special Detroit contact man; F. W. Smith, New York district representative, and V. A. Kennedy, special representative, St. Louis.

W. F. Scheibley, recently appointed sales manager of the automotive polish division (Whiz), R. M. Hollingshead Corp., Camden, N. J.

Fenn Heads Bantam

Francis H. Fenn has been elected president and general manager of the American Bantam Car Co., succeeding Roy S. Evans who resigned, the company announced this week. Evans retains his connection with Bantam as Chairman of the Board of Directors.

Fenn, who has been vice-president and general manager of the company for the past two years, has been closely identified with the automotive industry for many years. Before coming to Bantam, he held executive positions as general sales manager of Hupp Motor Car Corp., sales promotion manager of Pontiac Motors Division of General Motors, and Assistant to President of Willys-Overland.

ENSIGN Butane CONVERSIONS FOR Every NEED

Inherent characteristics of Butane, as a motor fuel, are ideal for power and economy. Ensign, with a quarter-century of carburetion experience, further added to the efficiency of this fuel. Ensign Butane conversions are unexcelled in any field.

For your complete satisfaction, when requesting information or ordering Ensign Butane-Propane Equipment from us or our dealers, please state following:

1. *Make and model of engine.* 2. *Number of cylinders, bore, stroke, speed.* 3. *Type of service—mobile, agriculture or construction.* 4. *Carburetor type—updraft or downdraft.* 5. *Fuels to be used—Butane or combination Butane and Gasoline.*

ENSIGN CARBURETOR CO., LTD.
HUNTINGTON PARK, CALIF.
DALLAS CHICAGO

JONES PORTABLE TACHOMETER

The world's largest operators of commercial vehicles use Jones Portable Tachometers to check engine speeds for tune - ups, and setting governors, etc. Here are a few: Standard Oil Co., of La., N. J., N. Y.; Shell Petroleum Co., Atlantic Refining Company, Tidewater Oil Company, Keeshin Motor Express, Mack Trucks, Brockway, U. S. Navy.

Direct, instantaneous reading

JONES-MOTROLA-STAMFORD, CONN.
432 FAIRFIELD AVENUE

GENERAL OIL FILTER
Announces a Sensational CARTRIDGE
- Filters Faster
- More Efficient
- Less Expensive

Write for details and Special Fleet Prices

GENERAL FILTERS, Inc. 9001 Apline Detroit

DOUBLE SAFETY | POSITIVE TRACTION | DOUBLE MILEAGE

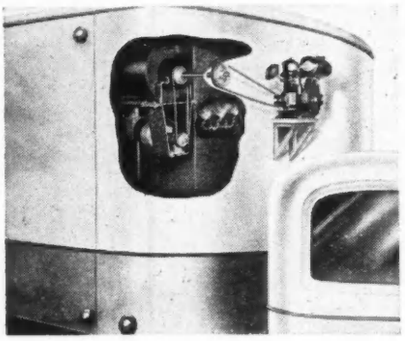
McKay Multi-Grip Double-Bar-Reinforced Truck Chains

THE McKAY COMPANY
McKAY BLDG. PITTSBURGH, PA.

TRADE MARK
NOC-OUT
THE HOSE CLAMP WITH THE THUMB SCREW

Seals absolutely against leakage of antifreeze, radiator connections, or heater hose. Type A, Adjustable, the Clamp with the thumb screw, 1 size fits many. Type GHH for heater hose. Type GBB for Booster Brakes.

WITTEK MFG. CO.
4305 W. 24th Pl., Chicago, U.S.A.



NEW! . . the
D & G SPRAY TYPE
Refrigerating Unit

Excess cooling capacity — Clutch Release for easy starting—Direct Cooling by Brine Spray—Ball Bearing throughout—Oversize, self priming bronze fitted pump and other features. *Write for complete facts.*

DROMGOLD and GLENN
1419 McCormick Bldg., Chicago, Ill.

Precision-built
AUTOCAR
TRUCKS

SHORT-WHEELBASE OR CONVENTIONAL GASOLINE OR DIESEL IN ALL CAPACITIES

ARDMORE, PA., AND LEADING CITIES

For running-in new and rebuilt engines use auxiliary lubricants containing "dag"* Brand colloidal graphite.

Acheson Colloids Corporation
Port Huron dag Michigan
*REG. U. S. PAT. OFF.

A recent Diamond-T contest for photographs of its Pak-Age-Car in action inspired this prize-winning shot, accredited for its excellence in lighting, posing and background

Industrial Notes

Pressurelube, that battery-operated, high-pressure portable grease gun will henceforth be distributed by Fruehauf Trailer Co. The device is manufactured by Pressurelube Inc., a subsidiary of Differential Wheel Corp.

For the second consecutive year, Studebaker scored a clean sweep in the Gilmore economy run from Los Angeles to the Yosemite taking first second and third honors in the ton-mile sweepstakes. Top honors went to the Commander for 54.75 ton-miles followed by President and Champion models. In addition all three cars won top honors in their price classes.

Replacement Sales Manager F. A. Miller of U. S. Asbestos Division greeted Grey-Rock salesmen at a recent convention with the good news that 1939 had been the company's most successful replacement sales year.

The Hercules "Power Package" Diesel engines for Ford trucks is now available for 1940 models. The Hercules distributor organization closely parallels locations of Ford branches.

Net earnings of $202,605 for the year ended Oct. 31 were largest in company history according to reports from Divco-Twin Truck Co. Sales were 18 per cent above the 1938 figure. Company recently opened a new, modern plant in Detroit.

A $200,000 award program for studies in improved methods of manufacture and maintenance has been announced by the James F. Lincoln Arc Welding Foundation, Cleveland. The contest period will run to June 1, 1942. A special automotive classification has been made.

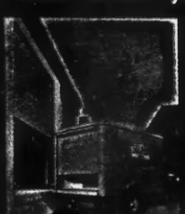
Chevrolet dealers did their bit for the industry when they celebrated National Truck Week, Jan. 8 to 13. Special displays

AUSTIN
THE ACCEPTED STANDARD
Fifth Wheels
Landing Gears
Pintle Hooks
Austin Trailer Equipment Company
Muskegon, Michigan
Manufacturers of Engineered Trailer Products

Specify
CLAW
Double-Duty

TRUCK CHAINS
Columbus McKinnon Chain Corp.
TONAWANDA, N. Y.

KINNEAR TRUCK DOORS
Also Doors for Buildings



ALL METAL . . .
. . . . . *Coils like a window-shade, out of the way* . . . . .
CONVENIENT
BURGLAR PROOF
FIRE PROOF
MORE DURABLE
Write for Details
KINNEAR
Manufacturing Company
2100-20 FIELDS AVE.
COLUMBUS, OHIO

DEVILBISS
Spray-Painting Equipment—Spray Booths—Canopy Exhaust Systems —Exhaust Fans—Air Compressors —Hose and Hose Connections— Oil Guns.
Write for catalog
THE DEVILBISS COMPANY
TOLEDO, OHIO
Distributors or direct sales and service representatives available everywhere.

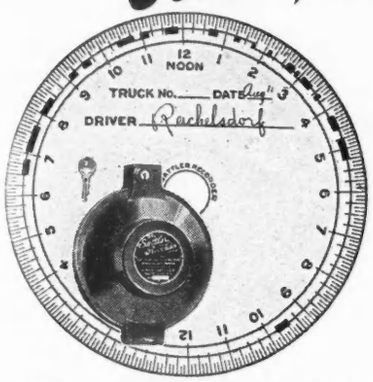
WHEN THIS HAPPENS — DO THIS — WONDERWELD

FOR VALVE PORTS AND INSIDE CYLINDER CRACKS

There is only one Niagara Falls. There is only one WONDERWELD. Miller Mfg. Co. makes it. Over a thousand jobbers sell it. Thousands use and recommend it. Sold only in the famous orange and black can. Beware of substitutes. Miller Mfg. Co., 1220 Kaighn Ave., Camden, N. J.

FRINK
SNO-PLOWS
REG. U.S. PAT. OFF.
Both "V" TYPE and ONE WAY BLADE TYPE
hand or power hydraulic control
FOR ALL MOTOR TRUCKS FROM 1½ to 10 TONS
Write for catalog 38AC and 38BC with discount to truck dealers.
CARL H. FRINK, Mfr., CLAYTON, 1000 Isl., N. Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.

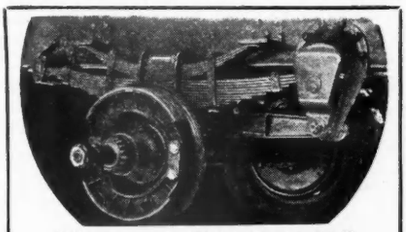
The Sattler Recorder



gives a complete record of the work of a truck

Enables you to check up on each truck after every day's run. Tells if rerouting is necessary, etc. Inexpensive. Entirely self-contained. No connections of any kind.

HANS SATTLER
Sheboygan, Wisconsin



GRAMM TRAILERS
"Ask the man who pulls one"
P Series Timken Power Brakes Now Standard
GRAMM TRAILER DIVISION, Delphos, O.

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Vacuum Power Brake Cylinders & Valves

10 different kits to fit popular types of Units

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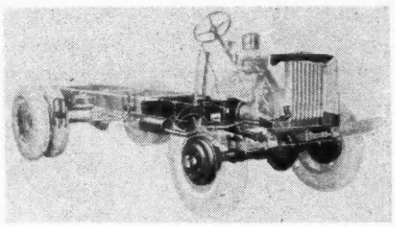


The phantom view of a four-wheel-drive Ford shows graphically which parts for the conversion are supplied by Marmon-Herrington

focused attention on the diversified roles which commercial cars and trucks play in the American business picture—running the transportation gammet from carrying packages for the corner grocer to hauling goods for a locomotive manufacturer.

Automobile tires give 12 times the value in terms of quality, durability and price than they did two decades ago according to compilations just released by Firestone's economic research division.

Newly appointed distributors for the Barrett Equipment Co., St. Louis, are: Amco Corp., 1213 Washington Blvd., Chicago; Charles R. Moll Co., 1519 McGee St., Kansas City, and The Central Battery Co., 101 Pearle St., Jackson, Miss.

Alger-Kirk Drivers Share $2,000

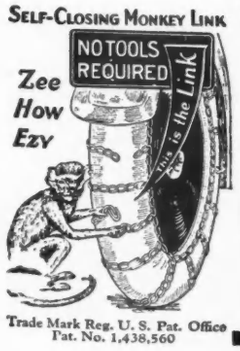
Fifty-one truck drivers of the Geo. F. Alger Co. and Kirk Transportation Co., motor freight carriers with main headquarters in Detroit, shared in a pre-Christmas distribution of $2000 as a reward for perfect safety records during 1939, according to an announcement by Geo. F. Alger, president of both companies.

With a total of approximately two million miles to their credit the drivers participating in this reward have had no minor accidents and have not so much as dented a fender throughout the year.

ICC Void's Bankrupt's Claim

In a closely contested 6 to 5 decision, the ICC ended 1939 with a sad blow for bankrupt carriers whose operations had been temporarily discontinued but who had hoped to still hold claim on "grandfather" rights. In simple terms the decision ruled that discontinuance of operations because of bankruptcy was within the carrier's control and thus prevented claim to a continuous operation" claim. Gregg Cartage & Storage Co., Cleveland, was the defendent.

SELF-CLOSING MONKEY LINK



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Pat. No. 1,438,560

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Prices on all sizes of Monkey Links have been reduced 40%. This means you now can get FIVE Monkey Links for the price of THREE—an economy in price to add to the economies of time and effort.

When cross links break, use Monkey Links to make the repairs. They make your chain as good as new. No tools are required. Your drivers do the job right on the road.

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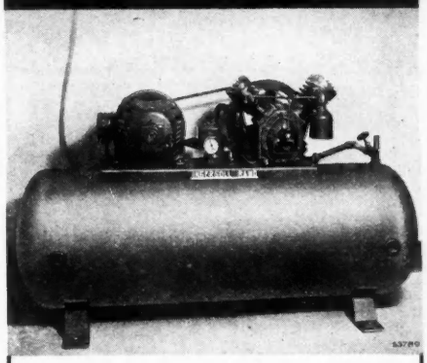
Write us for free samples. State number of trucks in your fleet and size of chains. We will send samples immediately.

FLOWER CITY SPECIALTY CO., Rochester, N. Y.
At All Reputable JOBBERS

Dirt *can't* get in

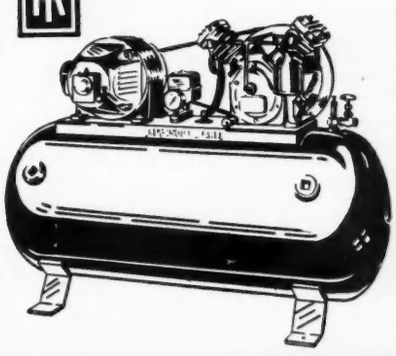


Ingersoll-Rand compressors have a totally enclosed crankcase. This prevents the contamination of the lubricating oil by dust and dirt. Longer life and less maintenance expense is the result.

Don't overlook the other money-saving features such as: ball bearings, stainless steel valves, and separate cylinders.

Ask the I-R jobber about them.

753-3



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I-R JOBBERS EVERYWHERE

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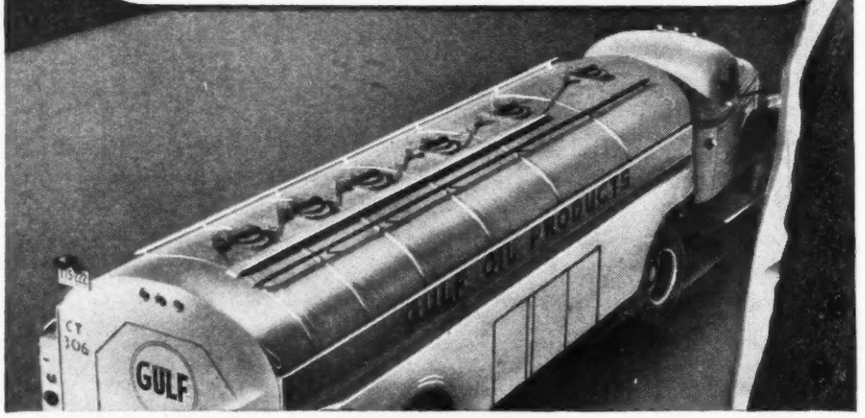
MAINTENANCE EXPERTS *say—*

USE GOOD OIL

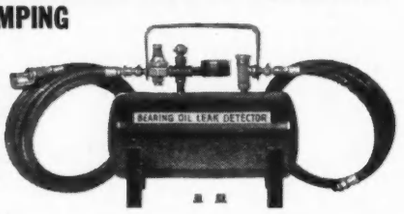
BUT DON'T WASTE IT THROUGH WORN ENGINE BEARINGS



GULF OIL CORPORATION and Gulf Refining Company maintenance experts say: "Worn engine bearings just burn up good oil. On all of our trucks they service, the Detroit Maintenance Division checks engine bearings regularly with the Federal-Mogul Oil Leak Detector. If the bearings are worn, they replace with Federal-Mogul Oil-Control Bearings to restore fine performance at low cost."

DON'T GUESS at the Cause of OIL PUMPING

The Federal-Mogul Bearing Oil Leak Detector is a simple, portable unit, with which any mechanic can quickly check all engine bearings and oil lines simply by dropping the oil pan. A great visual demonstration of why worn bearings should be replaced for oil control. Low priced. Ask your jobber or mail coupon for complete details.



Don't blame piston rings for oil waste caused by worn engine bearings—replace with Federal-Mogul Oil-Control Bearings to restore power, pep and economy!

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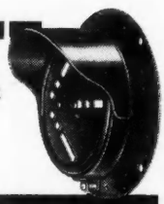

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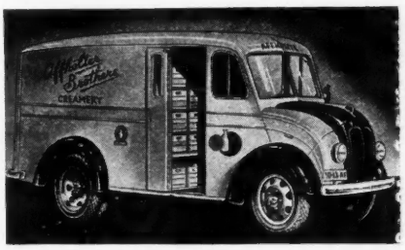
SOUTH BEND, INDIANA

Larger Divco-Twin

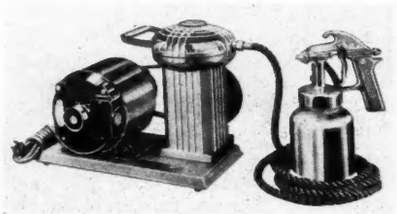
Introduction of a new larger Divco-Twin route delivery truck for the dairy industry was announced recently by Divco-Twin Truck Co., Detroit. The new Model ULM has 127½ in. wheelbase and is equipped with dual rear wheels, heavier springs, axles, and tires. Similar in appearance to the standard Divco-Twin milk route truck, except for its longer body and chassis, this



new model is especially designed for efficient delivery on combination wholesale-retail milk routes where an 85 case carrying capacity is usable. According to an official of the company, this new model was developed to meet the need, among the many Divco fleet owners, for a larger truck affording the same patented features common to the regular model now used on retail milk routes.

Binks Offers Spray Units

A new Roche portable paint spraying outfit has been introduced by the Binks Mfg. Co., Chicago, for jobs demanding small, inexpensive units. The compressor of the single diaphragm type delivers 2.2 cu. ft. per min. at 26 lb. working pressure



to a newly designed Roche "J" gun. This gun handles all kinds of average viscosity paints, enamels, varnishes, etc. The unit sells for $19.95 less motor. A piston type compressor is available with the outfit selling at $27.95 less motor.

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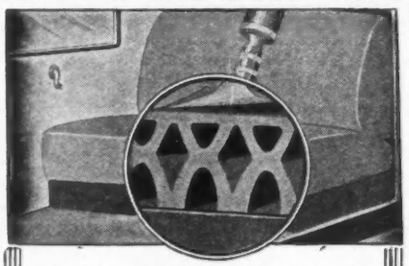

Truck operators who now use Black Diamond all-rubber seat cushions and back rests exclusively do not hesitate to say that they give longer wear, with no upkeep expense, than any other seat cushion they have ever known. There can be no question about their economy as exclusive diamond grid construction and quality materials assure the best at less cost. Cool and luxuriously comfortable. Will fit any size truck. Write today for details.

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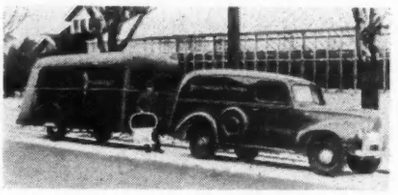
I. N. Brunson, formerly of the J. R. Case Mfg. Co., is now a field representative of the Jones Engineering & Mfg. Co., St. Louis.



Breitmeyers, Inc., prominent Detroit florists, demonstrates the efficiency of a new Covered Wagon trailer especially designed for light but bulky loads. Particularly adapted to handling peak seasonal requirements, it can be towed by any truck or passenger car

New Portable Bench Grinder

A new low-priced portable bench grinder, Model 119, is offered by the Speedway Mfg. Co., Cicero, Ill. It comes in a streamlined housing, and has a two-toned finish of blue crackel and lacquered white

metal. The unit rests on four rubber feet and contains two grinding wheels 4⅜ in. x ⅜ in. Complete with 110 volt AC motor, one fine grinding wheel and one coarse, and a six-foot cord. Priced at $9.85.

Earth Moving Tires

In step with the nation's road and highway building program, The B. F. Goodrich Co., Akron, Ohio, announces three new tires for earth moving equipment.

For the drive wheels of tractors hauling semi-trailer wagons in soft and muddy going, Goodrich offers its Earth Service type tire with self-cleaning cleats in a balanced non-skid tread pattern assuring sure-footed traction. Sizes range from the 10.50-24, with load carrying capacity of 6,200 pounds, to the 21.00-24 with 17,000 pounds capacity.

The new Rock Service earth mover, as the name implies, is intended for quarry, strip mining, logging and similar operations, and excavating service where substantial amounts of rock must be moved. Featuring a broad flat tread with cleated pattern for traction, the tire has tough side wall curb strips for additional strength against abuse.

For the free rolling wheels of scraper buggies a Trailer Service type tire was designed providing flotation as well as resistance to cuts, snags and bruises. The largest size for both the Rock Service and Trailer Service types is the 18.00-24 with a load carrying capacity of 14,900 pounds.

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BATTERY CHARGERS
Low Cost Battery Charging

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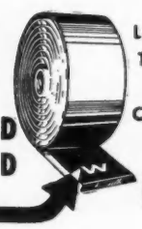
THE HIGHEST QUALITY OF RETREADING—RECAPPING

SEE THAT YOUR RECAPPER USES
GENUINE CERTIFIED WEBSTER TREAD



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SAVE time, labor and washing materials. Clean your fleets the modern Beaurline Way —using its fountain-type brush for cleaning and rinsing in one easy operation. Reduce time — use less materials — get more trucks cleaned—at much lower cost. BEAURLINE is the standard of leading fleet owners.

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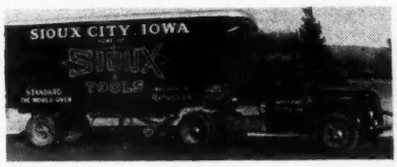
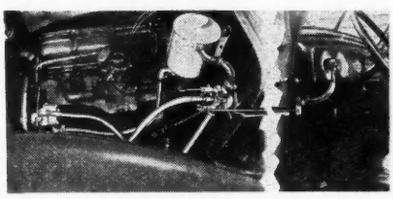


James Transportation Co., Inc., Sioux City, boosts home-town industries (as well as its own chances for business) by carrying huge trade marks painted on sides of its trucks

New Monarch Power Pump

Featuring a fan-belt drive and a single-lever cab control, a new hydraulic power pump has been put on the market by the Monarch Road Machinery Co., Grand Rapids, Mich. The device, identified as the



Hy-Rocket power pump, is designed to meet average working requirements, mounts under the hood and delivers 1000 lb. pressure per square inch using approximately 1/3 hp. The pump runs submerged in oil, providing a smooth quiet performance.

Venus Polish by Whiz

The Whiz Automobile Polish Division of the R. M. Hollingshead Corp., Camden, N. J., announces a new automotive polish which will be marketed under the trade name of "Venus." It cleans and waxes in one easy operation. It contains a special film softening agent that eliminates the need of abrasives and hard rubbing. A heavy, lustrous wax coating is deposited on the finish protecting it against the weather.

Barrett Lining Filler

Barrett Equipment Co., St. Louis, has a new "Prescription" brake lining filler that is said to dry practically as soon as the lining is in place, providing a non-resilient and extremely hard surface, filling up all uneven places between the brake lining and shoe and in many cases eliminates squeals and spongy pedal. It is being furnished in pints, quarts and gallons.

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COOLER RUNNING
because of recent developments in high speed ball bearings and lubrication.

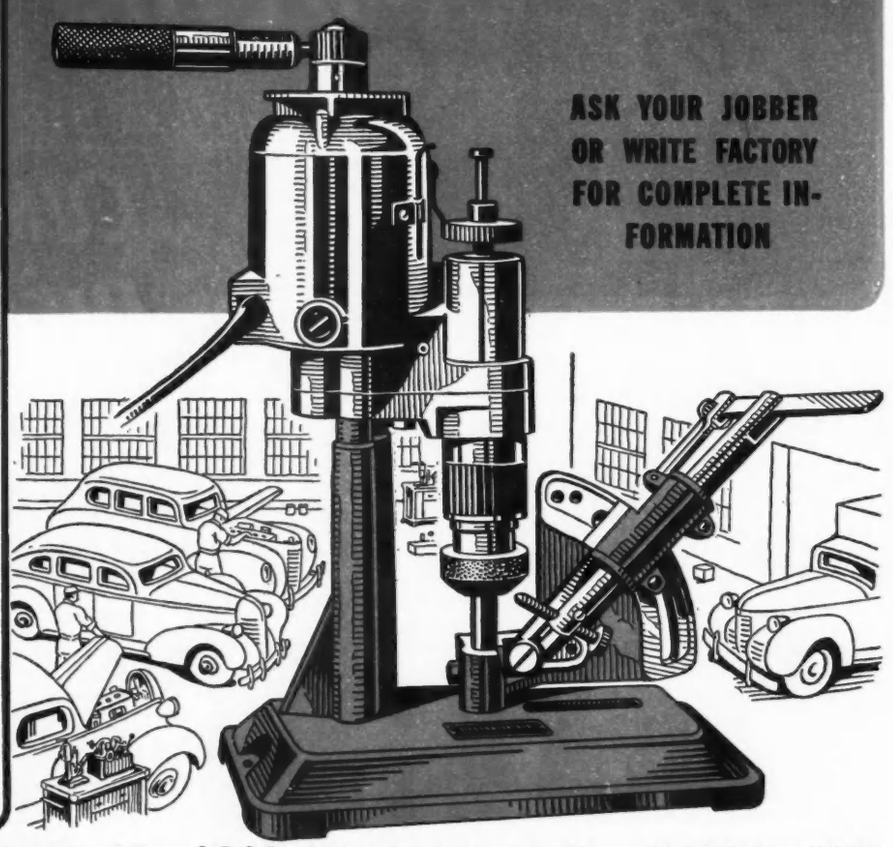
PERPETUALLY ACCURATE
New, low-cost replacement Eccentric Shaft, easily replaced by owner, keeps Grinder perpetually accurate.

QUIETER, SMOOTHER OPERATION
due to new methods of gear cutting and tooth finishing.

HIGH SPEED PARTS CARRIED ON BALL BEARINGS

UNMATCHED PRECISION AND FINISH

NO INCREASE IN PRICE



ASK YOUR JOBBER OR WRITE FACTORY FOR COMPLETE INFORMATION

THE HALL MANUFACTURING CO., 1610 WOODLAND AVE., TOLEDO, OHIO

Wherever Performance Demands Precision

HALL

SYNCHRONIZED VALVE SERVICING EQUIPMENT

Maintenance *is here!*

DIXIE-HOME STORES
GREENVILLE, S. C.

September 8, 1939

The Texas Company
Atlanta, Georgia.

Gentlemen:

Dixie-Home Stores has found that to operate its fleet of 71 vehicles in North and South Carolina, it is vitally important from an economic and safety standpoint to watch maintenance very closely.

In doing this we have by actual tests, periodical inspections and maintenance prevention methods, found that the best motor lubricants and gasoline, regardless of cost, have materially solved our problem.

Texaco products, Texaco Automotive Engineering Service, prompt deliveries and constant contact by Texaco representatives have assisted us in maintaining our fleet properly, and it is a pleasure to let other fleet owners know of our success with Texaco.

Insulated Texaco Motor Oils, Marfak, Thuban, E. P. Lubricants and Fire-Chief Gasoline have been used exclusively for the past two years.

Very truly yours,
DIXIE-HOME STORES

J. P. Williamson
Executive Vice President

jpw/a

J. P. WILLIAMSON, Executive Vice President, Dixie-Home Stores who wrote accompanying letter. Read what he says about Texaco.

Motor Oil

Texaco Dealers invite you to tune in The Texaco Star Theatre—a full hour of all-star entertainment—Every Wednesday Night—Columbia Network—9:00 E.S.T., 8:00 C.S.T., 7:00 M.S.T., 6:00 P.S.T.

When writing to advertisers please mention Commercial Car Journal

A TOUGH FINISH for Tough Service

Part of a fleet of 120 vehicles operated by United Transport Company, Joplin, Mo., users of Ditzco Enamel in drum lots

The Ditzco System for refinishing commercial vehicles is proving itself daily in the paint shops of some of America's largest fleet owners.

It is not only a tremendous time saver but Ditzco Enamel is making good on some of the toughest jobs, where continuous exposure and rough treatment are the rule. Many fleet owners are buying it by the drum.

Ditzco Enamel is a modern finish. It is quick drying—exceptionally high in solids—goes farther—covers better—produces a finer, smoother job, at appreciably lower cost.

It is adapted to finishing either metal or wood and will not lift old finishes. Dries with a high gloss and is dust free in 15 or 20 minutes at normal temperatures. Holds its rich, deep color and lustre and has that extra durability needed to stand up under frequent washing.

Your Ditzler Jobber carries complete stocks. If you need a new color design, consult our Studio of Design and Color.

DITZLER COLOR COMPANY, DETROIT, MICHIGAN

Send FOR THIS BOOK

IT WILL PAY YOU TO STANDARDIZE ON

DITZLER

Ask your jobber for the Ditzler Repaint Manual.

CHAMPION- Equipped Cars Again Sweep Gilmore-Yosemite Economy Run

All Sweepstakes Winners, and Winners of 7 out of 9 Classes Used Champions for Maximum Economy

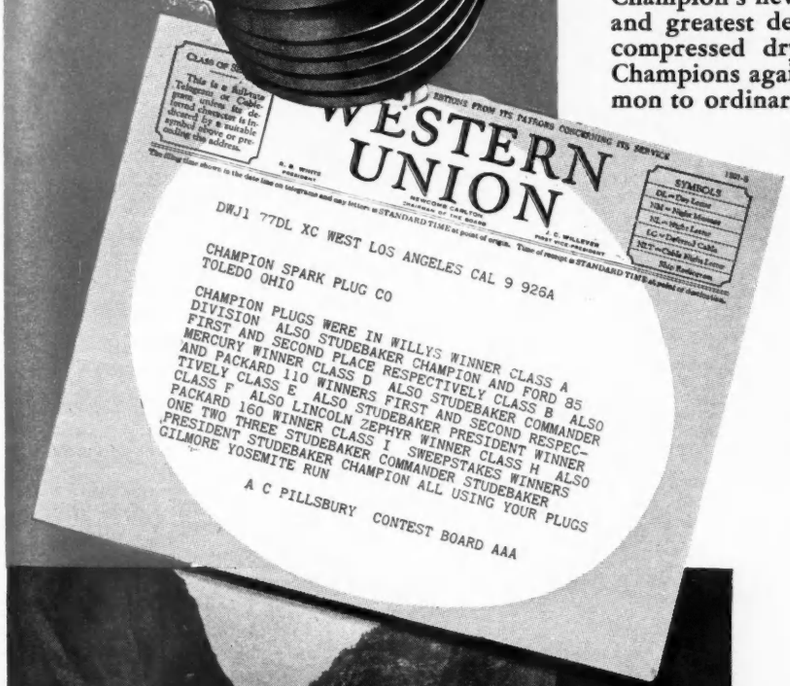
THE ANNUAL Gilmore-Yosemite Economy Run is a scientific test of economy conducted under the supervision of the American Automobile Association. Open to all stock cars in all price classes, it is of particular interest to owners of fleets of cars, buses and trucks because the results are determined in terms of ton miles per gallon.

Ever since its inception, Champion-equipped cars have won the majority of all Sweepstakes and price classes. The course is tough, carefully supervised and runs from Los Angeles to Yosemite Valley—a distance of 306.5 miles.

Champion Spark Plugs are made to extremely exacting standards and their reputation is world-wide for making every engine a better performing engine.

Champion's new Sillment construction is the latest and greatest development in spark plugs. It is a compressed dry powder that permanently seals Champions against troublesome gas leakage common to ordinary spark plugs. An exclusive Champion development—material and process patented—Sillment insures uniform gas-tightness and maximum economy and dependability in today's high compression engines.

Spark plugs are a vital and determining factor in the efficiency and economy of every fleet operation. Demand Champions, the spark plugs champions use. There is a size and type specially engineered for every engine and every operating condition.


WESTERN UNION

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CHAMPION SPARK PLUG CO
TOLEDO OHIO

CHAMPION PLUGS WERE IN WILLYS WINNER CLASS A DIVISION ALSO STUDEBAKER CHAMPION AND FORD 85 FIRST AND SECOND PLACE RESPECTIVELY CLASS B ALSO MERCURY WINNER CLASS D ALSO STUDEBAKER COMMANDER AND PACKARD 110 WINNERS FIRST AND SECOND RESPECTIVELY CLASS E ALSO STUDEBAKER PRESIDENT WINNER CLASS F ALSO LINCOLN ZEPHYR WINNER CLASS H ALSO PACKARD 160 WINNER CLASS I SWEEPSTAKES WINNERS ONE TWO THREE STUDEBAKER COMMANDER STUDEBAKER PRESIDENT STUDEBAKER CHAMPION ALL USING YOUR PLUGS GILMORE YOSEMITE RUN

A C PILLSBURY CONTEST BOARD AAA

CHAMPION
SPARK PLUGS

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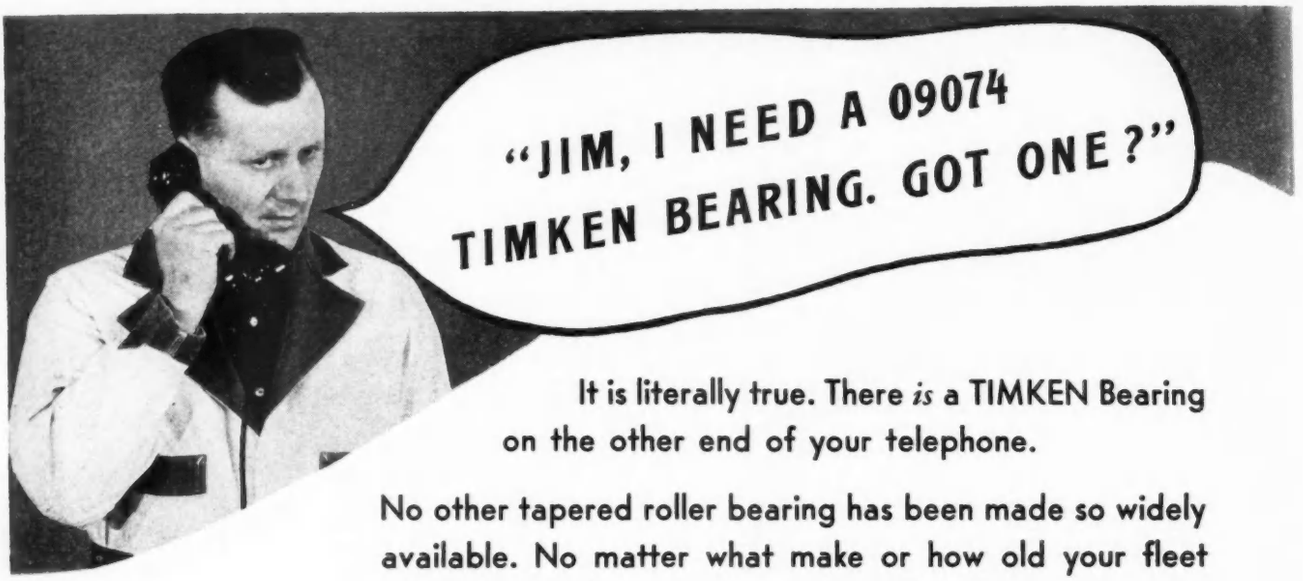
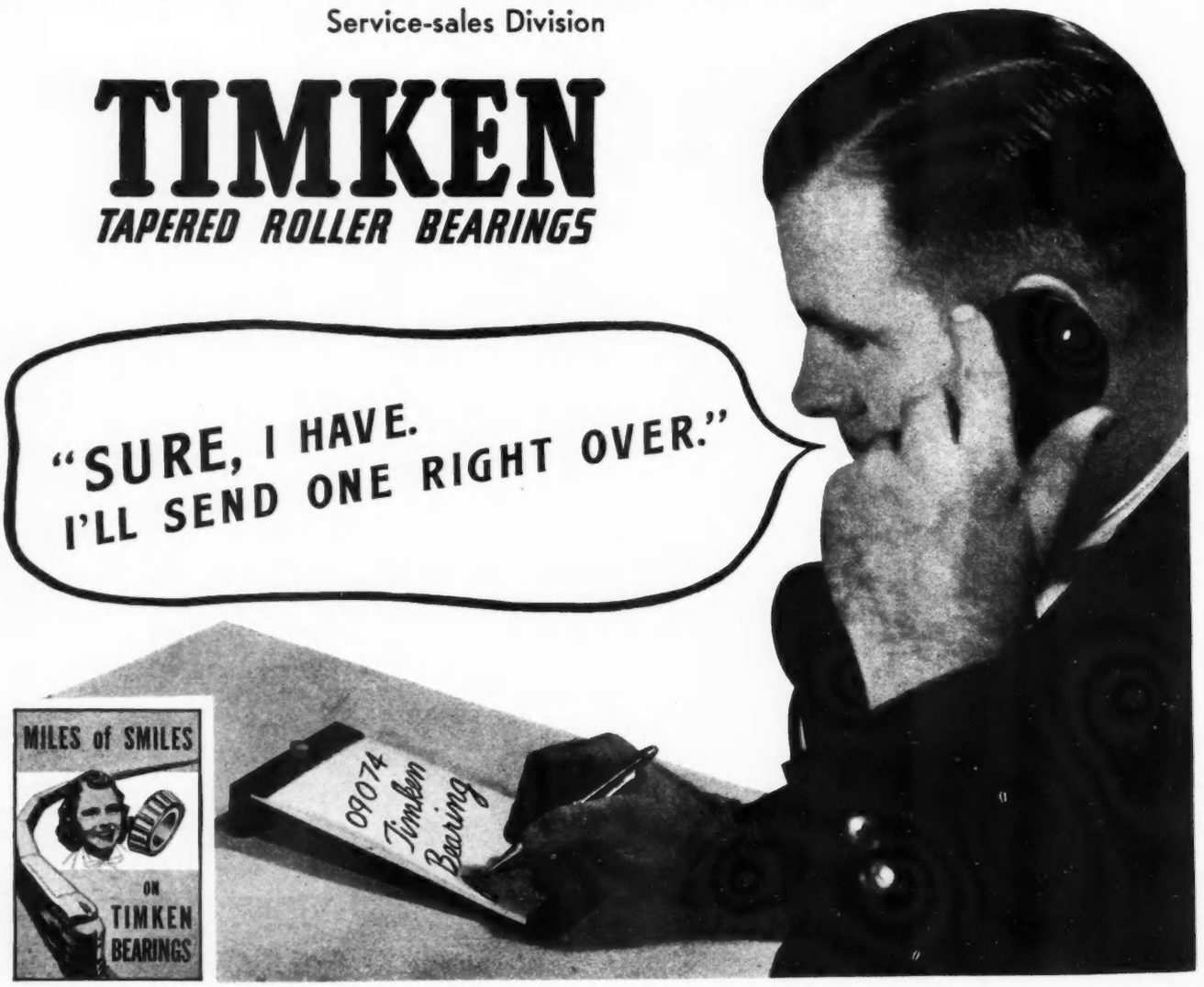


It is literally true. There *is* a TIMKEN Bearing on the other end of your telephone.

No other tapered roller bearing has been made so widely available. No matter what make or how old your fleet of trucks and buses are—no matter where they operate, in a modern metropolis or a remote hamlet, there is a TIMKEN Bearing available to replace a TIMKEN Bearing.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO
Service-sales Division

TIMKEN
TAPERED ROLLER BEARINGS



FLEET OPERATORS

HERE'S BIG NEWS!

NOW INCLUDES
TRUCKS, BUSES TRACTORS & DIESELS

400 brand new pages covering 900 different models of trucks, buses, tractors and Diesel engines.

★

500 pages on passenger cars, 1935 to 1940! 60% illustrations! The FASTEST and EASIEST way to do a thousand-and-one engine and chassis jobs!

FREE

YOUR THOMPSON PRODUCTS JOBBER IS GIVING THIS VALUABLE BOOK WITH AN ATTRACTIVE DEAL THAT DOESN'T COST YOU ONE EXTRA PENNY...

Your Thompson Jobber Salesman can show you this 1940 MANUAL and explain the 1940 supplements that keep you up-to-date on new models. He will tell you how you can get this book without charge.

Thompson Products Inc.

CLEVELAND • DETROIT

When writing to advertisers please mention Commercial Car Journal

The strong Wire-Mesh Backing provides a Greater Thickness of Usable Brake Lining!

The strong wire-mesh backing is an integral part of American Brakeblok lining. It permits the rivets to be so deeply countersunk that you get more lining — and more mileage — for your money.

In addition, the wire-mesh backing reinforces American Brakeblok lining, gives it the extra ruggedness to stand up under the most punishing truck service, and anchors it more firmly to the shoe.

In addition, a patented formula makes longer wear an inherent part of American Brakeblok brake materials. The correct friction for maximum safety is never sacrificed to increase mileage.

Fleets of all sizes, in every type of service, are increasing safety and saving money with American Brakeblok lining. Ask your jobber, or write us, about the correct application for your units. Then *try* it!

AMERICAN BRAKEBLOK DIVISION OF THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY, DETROIT, MICHIGAN

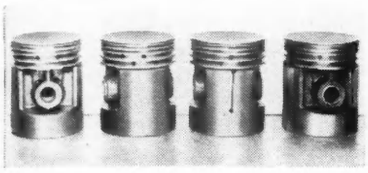
COPYRIGHT, 1940, THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY

OLD-TIME REPAIR MAN AMAZED AT ISO-VIS RECORD

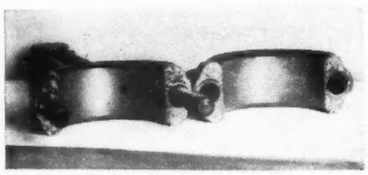
• It's SOMETHING of a job to amaze the foreman of a central state ambulance garage who's been around automobiles since 1906, but he admits it himself:

"I am writing regarding what I think is an amazing performance of one of the ambulances under my care and your Iso-Vis Motor Oil."

When the car that he speaks of was taken down after 193,000 miles of operation on Iso-Vis, here are some of the figures revealed. Not one bearing, ring or piston had been replaced in that time, and the pistons were good enough to use again. The point of greatest wear on cylinders was less than .0025 oversize. A .0015 shim was taken out of the rod bearings and the main bearings were not touched.



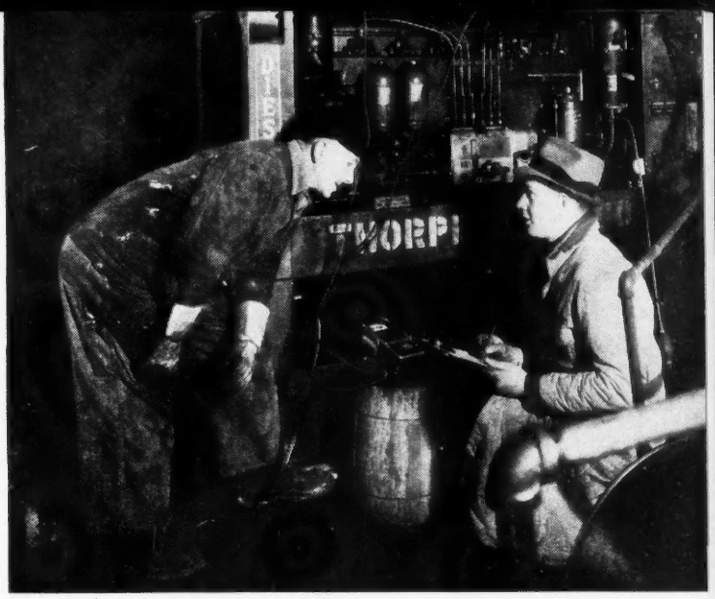
Pistons and connecting rod bearings taken from the ambulance engine after 193,000 miles of operation on Iso-Vis. The pistons were used again.



A .0015 shim was taken out of the connecting rod bearing, and main bearings were not changed.

A good product alone cannot duplicate this performance. It takes good maintenance practice as well. That's the reason for Standard Automotive Engineering Service. When you use this Service and Standard Oil fuels and lubricants you have a record-making combination.

C. B. Custer, Automotive Engineer at Davenport, checks combustion, operating temperatures, and ignition efficiency on a Rieke Lines truck. Overall efficiency was increased as much as 20% on some units in this fleet.



Jack Nelson, Des Moines Automotive Engineer, checks performance of one of Thorpe Well Co.'s Diesels.

CONTRACTOR FINDS STARTLING ECONOMIES

"We were not aware of the startling efficiency losses in our equipment until your Engineer brought them to our attention." That opinion from W. T. Thorpe of the Thorpe Well Company, Des Moines, summarizes the experience of practically every user of Standard Automotive Engineering Service.

Mr. Thorpe operates gasoline and Diesel powered well-drilling equipment throughout the Middle West.

"This service," he continues, "enables me to save as much as 100 gallons of fuel a day with all units operating."

There you have the whole story of Standard Automotive Engineering Service. These engineers help you make your equipment more efficient. You collect in lower fuel and maintenance bills. What's more, this service costs you nothing.

TRUCK OPERATOR BOOSTS STANDARD'S ENGINEERING SERVICE

"Your Automotive Engineering Service as rendered by your Mr. C. B. Custer can definitely be recognized as a factor in decreasing operating costs of our fleet."

H. W. Rieke, manager of the Rieke Lines, who gives this boost to Mr. Custer and his work, did not say he liked Mr. Custer's eyes or his poker-playing. He did say Mr. Custer *definitely reduced operating costs.*

There are engineers just like Mr. Custer located throughout the Middle West. One of them is waiting for you to call. In the meantime he is showing fleet operators around you how they can get all that they pay for in the gasoline, motor oils or lubricants they must buy.

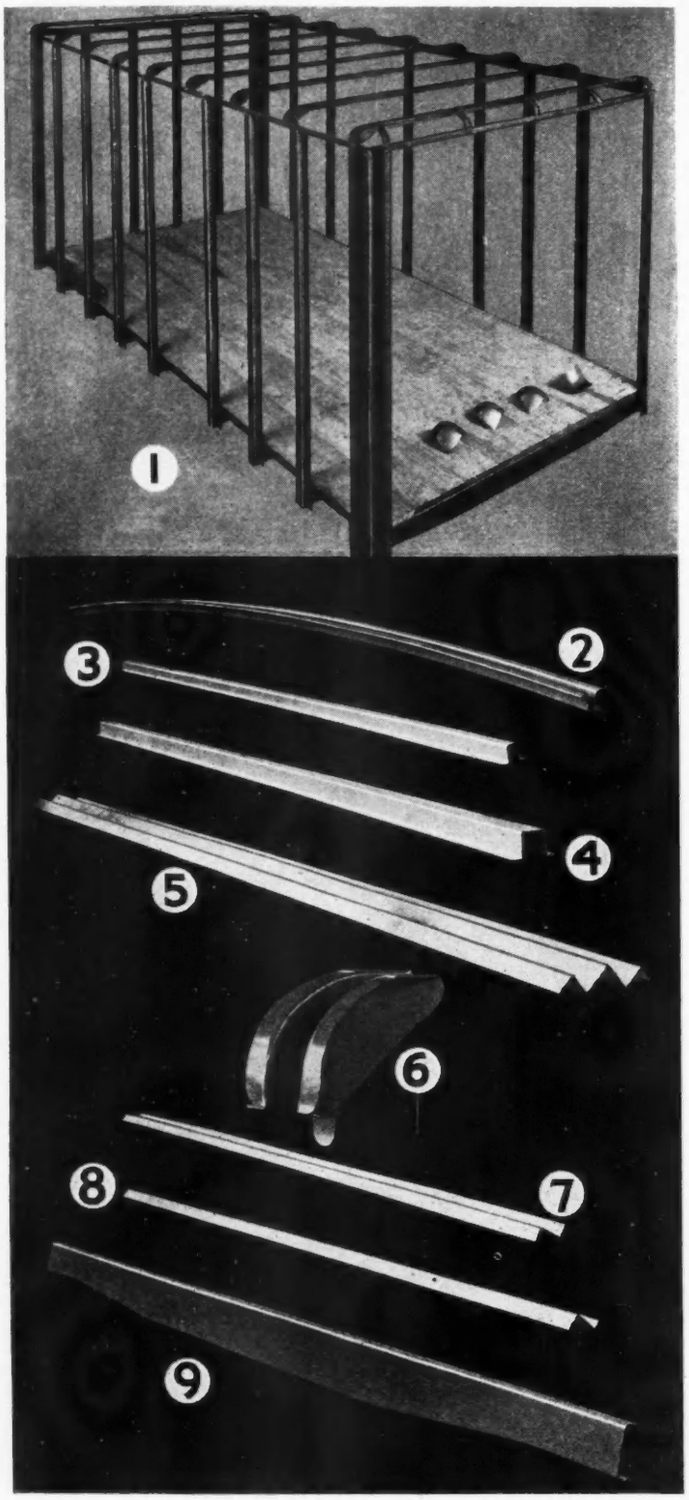
Just phone your local Standard Oil (Indiana) office and ask to have an Automotive Engineer call on you. Or write 910 South Michigan Avenue, Chicago, Illinois.

STANDARD OIL COMPANY (INDIANA)

AUTOMOTIVE ENGINEERING SERVICE

LOWERS MILEAGE COSTS

Photograph Courtesy Morris Soffe & Son, 170 W. Berks St., Philadelphia, Pa.



Announcing

A Complete Line of PRESS-FORMED BODY SECTIONS by *PARISH*

The name Parish, for 35 years associated with Heat-Treated Truck Frames, is now to be associated with Press-Formed Body Sections.

Parish has taken advantage of the many desirable properties of recently developed high strength steels, and, with the finest of modern equipment and years of experience in developing and forming steel products for the automotive trade, is now prepared to furnish body builders with an easily fabricated, yet strong, light-weight and economical body material.

Parish has available for immediate shipment from stock a complete line af accurately Press-Formed Body Sections—all having the weight-saving and unusual resistance to fatigue, impact and corrosion advantages of the modern high strength corrosion resistant steels.

Tests have proven its welding properties to be superior to those of mild steel, yet this steel has an elastic limit of 50,000 lbs. per square inch and ultimate tensile of 70,000 lbs. per square inch.

Durable, economical, Parish Press-Formed Body Sections are the answer to better body design for greater payloads.

Write Us for Complete Details

No. 1 Complete Body Frame of Parish Pressed-Formed Body Sections.

No. 2 Curved Roof Carline, 8' long, 1⅝" wide, 1⅛" high, .05" thick.

No. 3 Straight Roof Carline.

No. 4 Channel Post—8' long, 3¼" wide, 1¾" high, .63" thick.

No. 5 Corner Post—8' long, 5 7/16" square, .063" thick.

No. 6 Roof Carline Bracket—6¼" long, 3⅛" high, 2" wide. .05" thick.

No. 7 Zee Post—8' long, 1 15/16" wide, 1¾" high, .063" thick.

No. 8 Roof Lintel, 8' long, 1⅞" wide, 1 15/16" high, .063" thick.

No. 9 Tapered Cross Sill—7'11" long, 3¾" high at end, 5¼" high at center, 1¾" wide, 1.25" thick.

PARISH PRESSED STEEL COMPANY, READING, PENNA.

***Subsidiary of* SPICER MANUFACTURING CORPORATION**

***Western Representative:* F. Somers Peterson, 57 California St., San Francisco, Cal.**

PARISH

HEAT-TREATED PRESSED STEEL FRAMES FOR TRUCKS AND TRAILERS

HERCULES DIESEL
Replacement Engines for FORD TRUCKS

THE smooth, clean operation of America's foremost automotive Diesel — the abundance of power for the tough pull, with far less frequent gear shifting — these are some of the reasons why more and more Hercules Diesel Engines are being installed in Ford Trucks all over America and in many foreign countries.

The most important reason is, of course, ***the sensational saving in fuel costs!*** More miles from every gallon of fuel. More gallons for every fuel dollar.

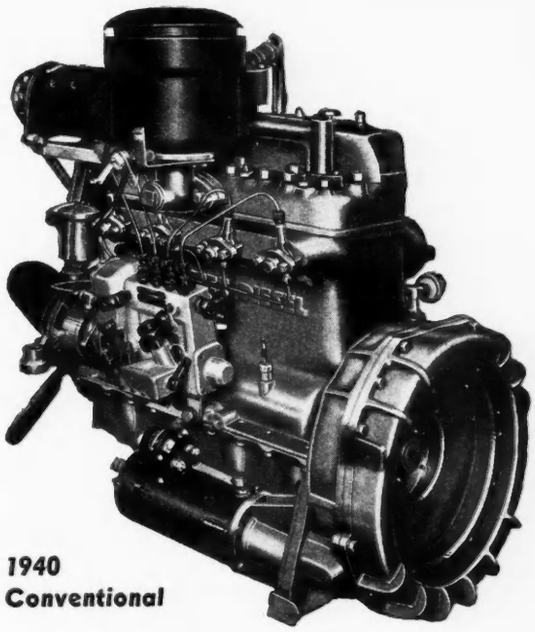
Models are now ready for 1940 Conventional and (left-hand-drive only) Cab-Over-Engine Ford Trucks — in addition to Hercules Diesel "Power Package" Replacement Units for the years 1935, 1936, 1937, 1938 and 1939. These are the identical Diesel Engines used by Ford Motor Company in chasses for export shipments.

Write today for name of nearest distributor — and typical performance records as given to us by owners.

NEW HERCULES BOOKLET—giving interesting explanation of the operation of the modern high-speed Diesel—will be sent on request.

HERCULES MOTORS CORPORATION

193 ELEVENTH STREET, S. E.
CANTON, OHIO, U. S. A.



1940
Conventional

12.6 Miles Per Gallon of Fuel Oil

"In three months our Hercules Diesel-equipped Ford Truck has traveled 19,036 miles. It has used a total of 1504 gallons of fuel oil — an average of 12.6 miles per gallon. Average pay load, approximately 17,000 lbs. — gross load, 30,400 lbs.

We are ordering another of these units — with 6.67 to 1 rear axle ratio and with auxiliary transmission."

Raymond Bros.
St. Cloud, Minnesota

BE PREPARED TO QUICKLY SERVICE YOUR FLEET

YOUR Wagner JOBBER can supply everything you need for COMPLETE HYDRAULIC BRAKE SERVICE

WAGNER LOCKHEED PARTS

Be prepared to completely service hydraulic brakes by having on hand a Wagner Lockheed parts assortment . . . Available in 1, 4, 12 and 18-drawer cabinets . . . There's a size just suited to your needs.

MOTOR AND HONE DRIVE

For cylinder honing. The motor is totally enclosed to overcome fire hazards and furnishes a seal against extraneous matter. This unit does not include hones.

HONING SET

Consists of three hone bodies, 30 honing stones, which include cutting, polishing, and wiper stones. Also one drill press adapter, six discs for honing step-bore cylinders, and five sizes of retaining springs, with two of each spring size furnished. This hone set will hone wheel and master cylinders ranging from ⅞" to 2" in diameter.

HYDRAULIC BRAKE CYLINDER CLAMP

Essential when relining hydraulic brakes. Saves time and eliminates the necessity for line bleeding. Sold in sets of four.

NO-GO GAUGES

The use of the No-Go Gauges will eliminate the possibility of oversize cylinder bores. Castings which are honed large enough to permit the gauge to enter should be scrapped. Sizes ⅞" to 2".

THE Wagner Lockheed line of parts is *complete*. Every part of the hydraulic brake system — pistons, cups, valves, fittings, cylinders, etc. — used in any make of brake since the hydraulic brake was put on cars and trucks, can be obtained through any Wagner jobber. Look to him for your parts as well as for genuine No. 21 Fluid.

Any Wagner jobber can also supply the parts assortments, tools and equipment you should have to modernize your service department. A few of the products are described herewith.

WAGNER FLUID-BAL HYDRAULIC PRESSURE BLEEDER TANK

Saves fluid — quickly replaces fluid in the system, and leaves it recharged with fresh, clean fluid. The air-pressure in the bleeder tank eliminates the necessity of pumping the brake pedal and using an extra man . . . Made of LYNITE aluminum alloy — no chance for rust to form inside of tank . . . Capacity 3½ gallons . . . Portable. Mounted on large casters . . . Complete with 10-foot hose . . . Can be pulled from job to job.

WAGNER LOCKHEED HYDRAULIC BRAKE FLUID

No. 21 is an all-weather fluid . . . One type meets all needs . . . Not affected by heat or cold encountered in operation of automobiles . . . Mixes readily . . . None better at any price . . . Available in pint, quart, gallon and 5-gallon containers.

AUTOMATIC BRAKE CYLINDER REFILLER

Fully automatic—cannot fill master cylinder beyond proper level. Cylinder cannot be pumped dry, nor can air enter system. Assures convenient, reliable job.

Clip and Mail this Coupon Today!

AUTOMOTIVE PARTS DIVISION

H39-23B CCJ

WAGNER ELECTRIC CORPORATION

6400 Plymouth Ave. **St. Louis, Mo., U.S.A.**

Send FREE copy of Service Manual SD344B which covers servicing all makes of hydraulic brakes. Also send information on ☐ Wagner Lockheed Hydraulic Brake Parts, ☐ No. 21 Fluid, ☐ Service Tools and Equipment.

FIRM.....

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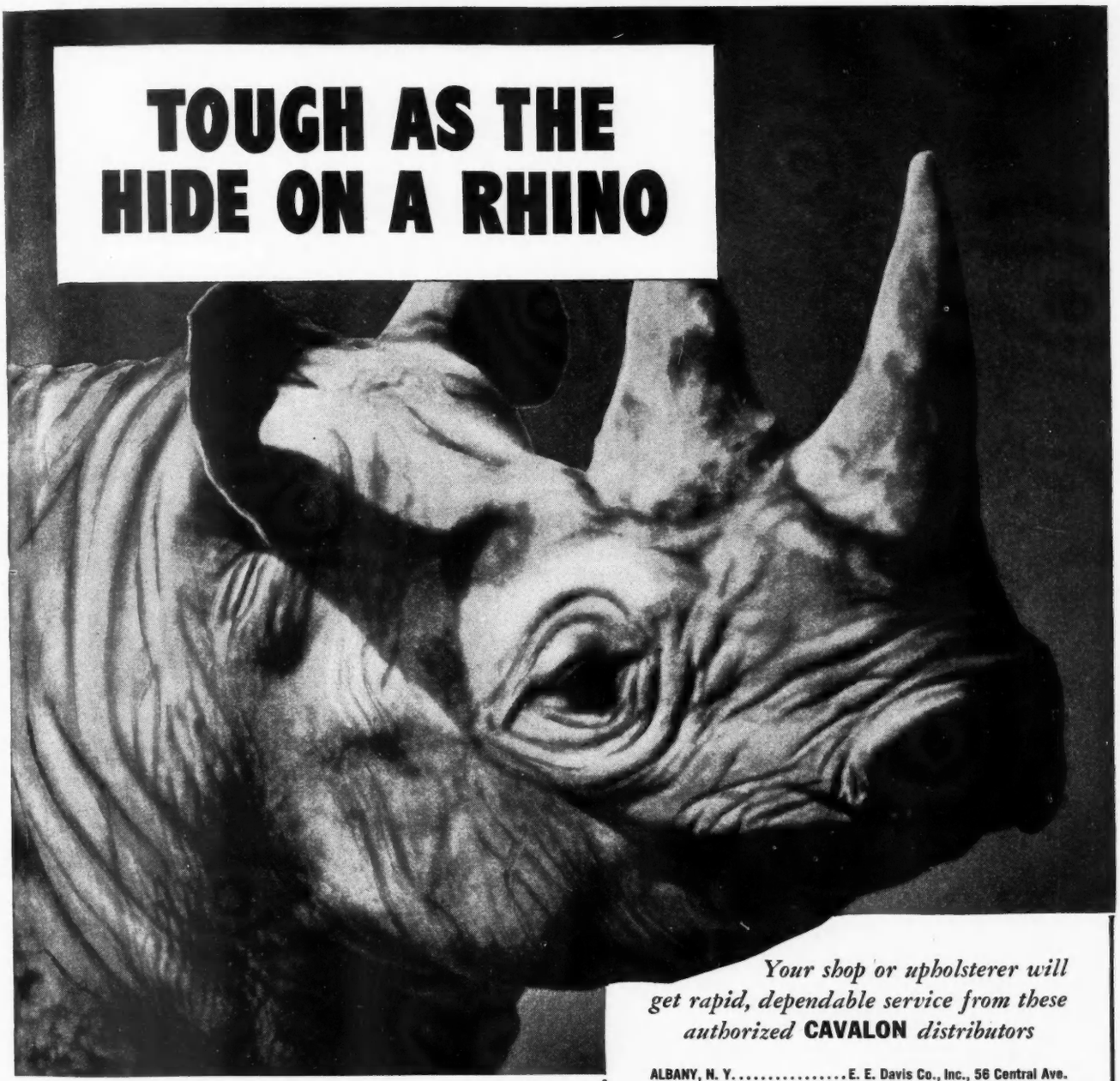
MY JOBBER IS.....

TOUGH AS THE HIDE ON A RHINO



THIS horny-hide rhinoceros hasn't anything on "Cavalon"* heavy-duty upholstery material. "Cavalon" has more guts than any seating material you've ever seen. It can take the roughest, toughest treatment—and still have thousands *more* miles of hard wear left in it.

...And there's a reason: The amazing durability of "Cavalon" is due primarily to the special "case-hardening" process by which du Pont makes it. It's thoroughly laboratory and road tested to check resistance to cracking, peeling, puncturing, and general abrasive wear. No wonder so many of the BIG fleets are 100% "Cavalon" upholstered. Samples on request.

E. I. DU PONT DE NEMOURS & CO. (INC.)

"Fabrikoid" Division • *Fairfield, Conn.*

DU PONT
CAVALON
TRADE-MARK

Your shop or upholsterer will get rapid, dependable service from these authorized **CAVALON** *distributors*

ALBANY, N. Y. ..... E. E. Davis Co., Inc., 56 Central Ave.
BOSTON, MASS. .... David Shapiro Co., Inc., 758 Commonwealth Ave.
BRIDGEPORT, CONN. ..... Bridgeport Fabrics, Inc., 194 Holland Ave.
CLEVELAND, OHIO ..... The Ingraham Supply Co., 575 Broadway Ave.
DENVER, COLORADO ..... A. G. Seaver, 1855 Welton Street
FORT WORTH, TEXAS.. M. G. Davis Supply Co., 608-614 Commerce St.
HOUSTON, TEX. Stewart & Stevenson Distributing Co., 1719 Preston Ave.
KANSAS CITY, MO. ..... C. R. Coffey Company, Inc., 1615 Oak Street
KNOXVILLE, TENN. ..... R. T. Clapp Co., 401-407 N. Broadway
LOS ANGELES, CALIF. ..... Lindsey & Hall, 1036 So. Hope Street
MILWAUKEE, WISCONSIN. ..... Gebhardt, Inc., 213 N. Broadway
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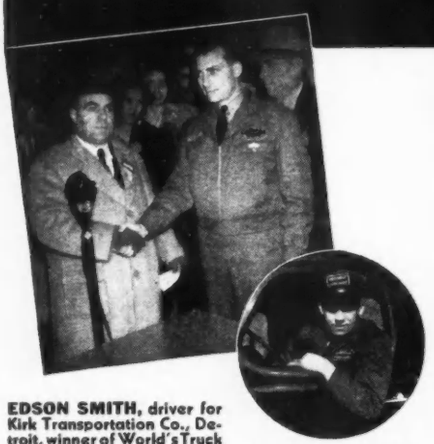
**"Cavalon" is du Pont's reg. trade-mark for its rubber-coated upholstery fabric.*

DU PONT ON THE AIR—"Cavalcade of America" Tuesdays, 9 P. M., E. S. T., National Broadcasting Company Networks.

AMERICAN TRUCKING ASSOCIATIONS

Present "WORLD'S CHAMPION TRUCK DRIVER"



EDSON SMITH, driver for Kirk Transportation Co., Detroit, winner of World's Truck Driving Championship second time in a row, being congratulated by Ted V. Rodgers, president, A. T. A.

FRANK STEED, Second-place winner, 1938 and 1939, drives for Georgia Highway Express, Atlanta.

Three cheers for the men who make their living driving trucks—the "Gentlemen of the Highway" from whom we can all take lessons in courtesy and safety on the road. To top that army of commercial drivers is an honor of which any man might well be proud! That is why the American Trucking Associations are honoring Edson Smith of Michigan, twice champion of the truck drivers' world. A very important part of the Associations' work is concerned with driver safety, morale, efficiency, and courtesy, culminating in the annual National Truck Rodeo for which all drivers with a one-year accident-free record are eligible to compete. International Harvester publishes this page in tribute to the highly constructive work of the A. T. A., and is justly proud that both the winner and the runner-up in the 1939 contest drove International Trucks.

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
180 North Michigan Avenue Chicago, Illinois

Both DROVE
INTERNATIONAL TRUCKS
IN THE FINALS AT CHICAGO

Copyright 1940
International Harvester Company, Incorporated

New Cab-Over-Engine
Model D-500
Nominal gross weight rating 18,000 lbs.
Model DR-700
Nominal gross weight rating 24,000 lbs.

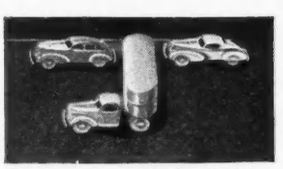
INTERNATIONAL TRUCKS

What it takes to be A CHAMPION DRIVER

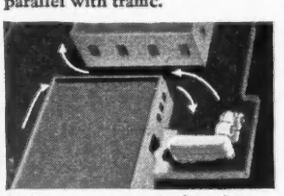
Each year, the A.T.A. sponsors the National Championship Truck Rodeo to select the National Truck Driver Champion. To participate in state contests whose winners compete in this annual championship rodeo, a driver must have had an accident-free record for one year.

Each contestant is quizzed on Interstate Commerce Commission safety rules and the basic principles of highway transportation.

Another test is a safety inspection—a thorough check of equipment to assure safe operation.



Drivers were required to back an 8-foot-wide semi-trailer between two cars parked 10 feet apart, and finish with the truck-tractor parallel with traffic.



Drivers were required to drive a 35-foot tractor-trailer through a 16-foot alley into a court and back against the loading platform, then drive into the street through the same alley.

• • •

WRITE FOR FREE BOOK

The American Trucking Associations will be glad to have truck drivers, everywhere, qualify for the 1940 contests. The A. T. A. has prepared a booklet telling the story of the annual Truck Driver Championships. This booklet will be sent free, and postpaid. Send in the coupon or address a card as below:

MAIL THIS COUPON

International Harvester Company
(INCORPORATED)
180 N. Michigan Ave., Chicago, Ill.

Without obligation, please send me the A. T. A. free book on the annual Truck Driver Championships.

*Name*_____

*Address*_____

*City*_____

*State*_____

FOR ECONOMICAL PERFORMANCE RECONDITION YOUR FLEET WITH

Sealed Power Assemblies

INCLUDING PISTON RINGS, PISTONS AND PINS

for FORD
CHEVROLET
PLYMOUTH
DODGE
TRUCKS *and*
COMMERCIAL
CARS

EVERY day fleet operators' records are proving that Sealed Power assemblies are delivering more economical performance per mile and more miles of superb performance. These assemblies of rings, pistons and pins are tailor-made to work together. They are fitted to the proper clearances at the factory, assuring top efficiency.

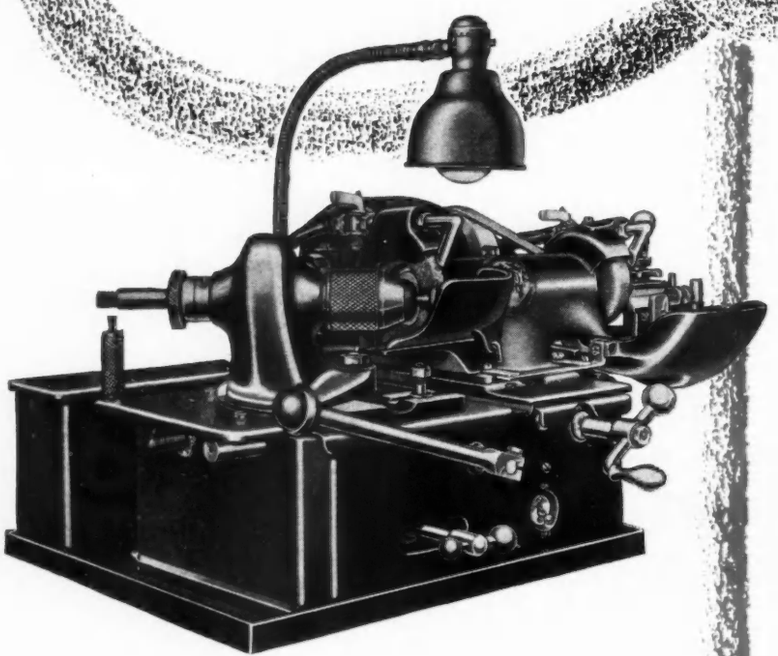
Operating and maintenance costs are important to fleet operators. That is why Sealed Power assemblies are so popular. They deliver more per mile both ways. Give them a good trial. Your records will prove the wisdom of your selection.

SEALED POWER CORPORATION
MUSKEGON, MICHIGAN
Canadian Factory, Windsor, Ontario
Piston Rings, Pistons, Pins, Valves, Sleeves, Spindle Bolts, Bushings, Water Pumps, Tie Rods, Front End Parts

SEALED POWER PISTON RINGS

BEST IN NEW CARS! BEST IN OLD CARS!

FOR EFFICIENCY WITH SPEED—USE THE SIOUX VALVE FACE GRINDING MACHINE WET GRINDER



WET GRINDS ALL VALVES

Any angle, except 90°. Chucking capacity ¼" to ⅝" diameter, inclusive. Equipment includes attachments for grinding valve ends for Ford A, B, V8 and Zephyr.

WET GRINDS VALVE TAPPETS

Trues up Ford valve tappets to mirror-like finish. Dial provides for any desired tappet clearance by grinding off valve end.

WET GRINDS ROCKER ARMS

Worn rocker arms refaced to original efficiency. Scientific design lines up rocker arm face with bearing, assuring perfect results.

COMES COMPLETE

No. 658 comes complete and ready to use. Is equipped with ¼ H. P. Motor and perfected Sioux Roller Chucking System.

● For factory precision and finest finish, for speed with accuracy—you can't beat SIOUX **wet grinding.** It's the smoothest, easiest, fastest and most dependable method you ever tried. Eliminates heat and distortion. Minimizes wheel dressing. The SIOUX has many outstanding features. For full particulars

Ask Your Jobber's Salesman

STANDARD THE WORLD OVER

ALBERTSON & CO. INC., SIOUX CITY, IOWA, U.S.A.

WIX FILTEREFILS are setting the pace in filter maintenance practice throughout the fleet field . . . Because, peak filtering efficiency has been coupled with rock bottom cost in WIX replacement elements for ALL popular clean-oil type filters. WIX gives you 5 to 15% more cotton waste content per refill . . . a soundly engineered, depth type element of long staple, crinkly cotton fibres unmatched in quality, uniformity and natural filtering efficiency in the market today. AND, AT SENSATIONAL LOW PRICES!

Produced right in the heart of the cotton textile country—this higher efficiency and lower cost is obvious, due to manufacturing at the very source of the highest grade and principal raw materials involved.

It's no wonder this superbly engineered Refill has become the hot favorite in lowering maintenance expense wherever filter equipped trucks and busses roll along the highways. Put this economy and winning performance into your filters. Out of it you'll get real savings in maximum oil mileage at filter refill costs that will make your eyes pop. Use the coupon—ask for prices on WIX replacement elements for YOUR filters.

PATENTS APPLIED FOR
Sensational WIX Replacement Elements for all popular CLEAN-OIL Type Filters. Models available to replace elements in these filters in use on Trucks, Busses, Tractors, Passenger Cars and Stationary Engines.

wix
TRADE MARK
FILTEREFIL
ACCESSORIES CORPORATION, GASTONIA, N. C.

ACCESSORIES CORPORATION
GASTONIA, N. C.

Gentlemen: We are interested in refills for.....

.....
(GIVE FILTER MANUFACTURER'S NAME)

Send us complete information and prices on your low cost refills for above filters.

NAME .....

ADDRESS .....

CITY ..... STATE .....

When writing to advertisers please mention Commercial Car Journal

CASE HISTORY NO. 132:

"You Saved Us $5.25 Per 1000 Truck Miles"

"DESPITE CITY DRIVING and frequent stops," writes Wisconsin operator, "our 100-truck fleet now costs us 18% less for maintenance... 8% less for fuel. Your Fleet Engineer saved us $5.25 per 1000 truck miles!"

Let Socony-Vacuum's Fleet Engineering Service help cut your fleet operating costs, too. Call us today.

SOCONY-VACUUM'S

Fleet Engineering Service

1 *74 YEARS'* EXPERIENCE FOR *YOU*

Every Socony-Vacuum Fleet Engineer is backed by 74 years' lubrication experience. He can help *you* reduce operating costs.

2 *SERVICE*—COAST TO COAST

Socony-Vacuum products are available wherever you need them...are right to meet *all* conditions on your routes.

3 WE STUDY *YOUR FLEET*

Socony-Vacuum Engineers study your problems . . . recommend suitable lubricants for the vehicles in your fleet.

4 YOU GET *CORRECT LUBRICANTS*

Based on scientific tests, our Engineers select proper grades from famous Sovac Truck and Bus Oils, Mobilubes, Mobilgreases.

SOCONY-VACUUM OIL COMPANY, INC.

Standard Oil of New York Division • White Star Division • Lubrite Division
Chicago Division • White Eagle Division • Wadhams Division • Magnolia Petroleum Company • General Petroleum Corporation of California

SOCONY-VACUUM

When writing to advertisers please mention Commercial Car Journal

Saves Pencil Work!

The modern method of restoring original performance and mileage to carburetors that have given many thousands of miles of efficient service is through the use of the Carter Repair Package.

This quick service plan makes ordering easy—saves "pencil work." And because the package contains essential parts it assures a more satisfactory job. Then, too, there's a saving in the cost of parts bought this way—an added profit for you.

Ask your Carter jobber or distributor for the new Carter Repair Package—or write for full information.

CARTER CARBURETOR CORPORATION

2820-56 North Spring Ave., St. Louis, Mo.

Division of American Car and Foundry Company

CARBURETER
PRODUCTS OF PRECISION

Every Load a PAY LOAD WITH "SERVICE-PROVED" JACKS

CONSOLIDATED FREIGHTWAYS INC.
PORTLAND, OREGON

August 21, 1939

Blackhawk Mfg. Company
Milwaukee, Wisconsin

Gentlemen:

Mr. Bob Floyd ... is certainly right when he says that we are large users of Blackhawk Jacks. In fact we have over 200 of the D-11 Blackhawk Hydraulic Jacks in service at the present time and are very well satisfied with them. ...

Very truly yours,
CONSOLIDATED FREIGHTWAYS, INC.
J. Jolly by D. H.
J. Jolly - Purchasing Agent

YOUR best insurance against road delays is a Blackhawk Jack . . . it *lifts* the LOAD as well as the TRUCK.

There'll be no wasted time shifting or unloading pay loads to bring the gross weight down to the ability of the jack. Blackhawk Jacks assure on-time schedules, snappy tire changes and plenty of guts to handle all road and shop emergencies.

Wise buyers, like Consolidated Freightways, buy Blackhawk "Service-Proved" Jacks . . . get more for their money . . . and guarantee *every* load a pay load.

DEPENDABILITY SEAL OF Service Proved QUALITY PERFORMANCE

This seal is found ONLY on BLACK-HAWK JACKS . . . Your assurance of a wise investment.

Only complete line of Hydraulic Hand Jacks — 20 models —1 to 75 tons capacity. ALSO big line of Service Jacks; handle up to 7½ tons.

Added Proof of More-For-Your-Money Values

1. **BLACKHAWK JACKS are STANDARD EQUIPMENT** on trucks and buses — because exhaustive tests PROVED Blackhawks superior.
2. **EVERY LEADING AXLE and FRAME STRAIGHTENER** is equipped with Blackhawk Hydraulic Jacks — because only Blackhawks can stand the gaff.
3. **OVER A MILLION BLACKHAWK JACK OWNERS are REPEAT** customers — proof of satisfactory performance.
4. **MADE by the WORLD'S LARGEST MANUFACTURER of HYDRAULIC LIFTING EQUIPMENT**—proof of Blackhawk's ability to supply QUALITY materials and manufacture at the lowest possible price.

WHEN YOU NEED A JACK YOU WANT A GOOD ONE. A jack at any price is worthless unless it continues to serve its purpose with safety and dependability. Buy Blackhawk "Service-Proved" Hydraulic Jacks — and get MORE for your money.

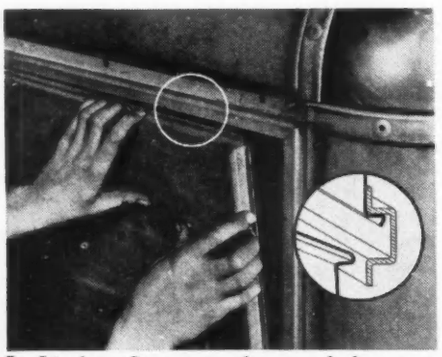
***A Product of* BLACKHAWK MFG. CO.**
Department J1120 MILWAUKEE, WISCONSIN

BLACKHAWK

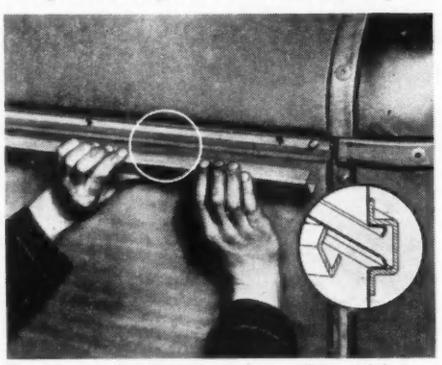
More for Your Money SERVICE EQUIPMENT

When writing to advertisers please mention Commercial Car Journal

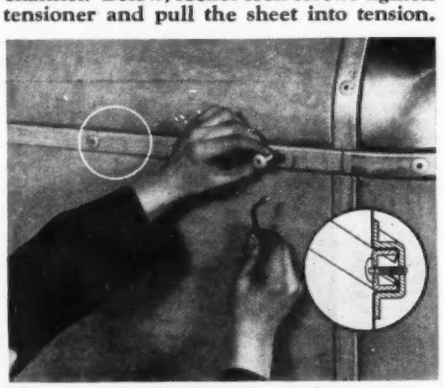
Cut Dead Weight—Increase Payload with this New ALL-STEEL Truck Body



In Lindsay Structure, the panel sheets actually act as bracing cables. Photo shows a side panel being fitted into the framing.



Tensioner fits over panel into flanged frame channel. Below, socket lock screws tighten tensioner and pull the sheet into tension.



The resulting Lindsay Structure body has framing and panel sheets tied together into a unified structure to which every ounce of steel contributes all its strength.

Ls truck body built for Modern Dairy Company by Erlinder-Platt Sales Corporation, Chicago.

Structural Strength of "Pre-Tensed" Sheets Reinforces Framing and Resists Wracking

Now, with Lindsay Structure you can get a sturdy truck body that is as light weight, for a given strength, as bodies made of aluminum or high tensile steel. Yet it costs no more than less durable, heavier bodies.

The secret of this remarkable new development lies in the Lindsay Structure principle of joining steel sheets and framing so that the complete structural strength of the sheets is utilized. Instead of being supported by the framing, panel sheets are "Pre-Tensed" to hold the frame in a rigid grip. Thus, the entire strength of the body metal is available to resist wracking indefinitely. Then too, there are no weld points or rivet holes for stresses to concentrate and cause the structure to loosen. The result is a light weight all-steel body of extraordinary strength and durability.

No Maintenance Required

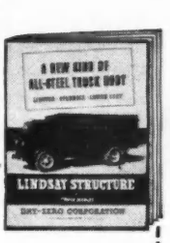
Ordinarily Ls bodies require no maintenance and, in the event of damage, body repairs can be localized. Any section can be quickly replaced from the outside without disturbing the other sections.

Lower First Cost

Lindsay Structure bodies are made of parts prefabricated by mass production methods. Yet they can be custom-built to within one-half inch of any desired size! Write today.

There is an AUTHORIZED Ls BODY BUILDER in your locality

Send for New Bulletin



DRY-ZERO CORPORATION
222 North Bank Drive, Chicago

☐ Please send me new Ls bulletin.

NAME.....

ADDRESS.....

CITY.....STATE.....

240

LINDSAY STRUCTURE

TRUCK BODIES

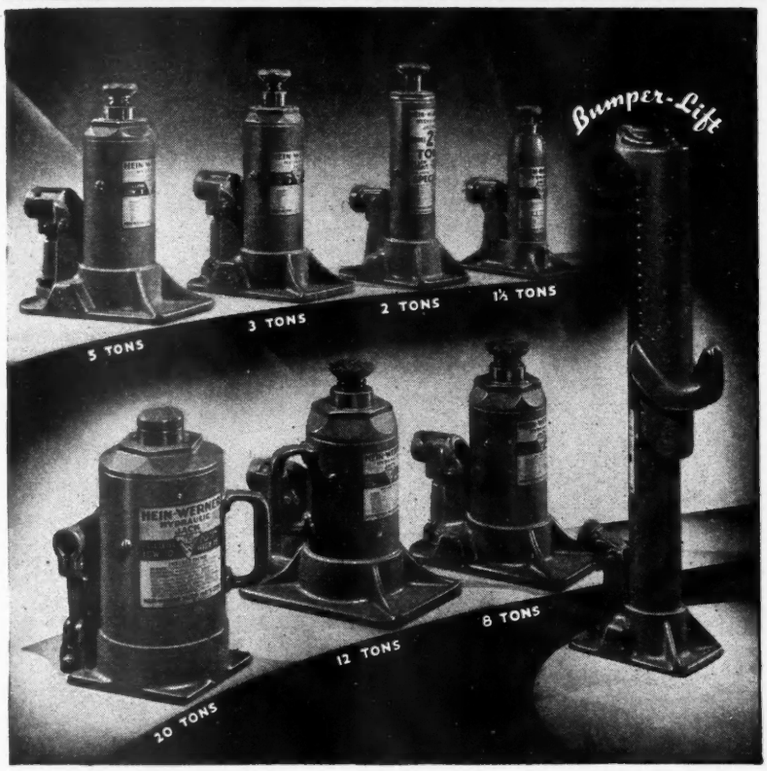
UTILIZES ALL THE STRENGTH OF THE STEEL

You get a

LOT of VALUE for Little Money

when you buy a

HEIN-WERNER HYDRAULIC JACK



Range from 1½ ton model at **$2.80** up to 20 ton model at $30.00

12 ton capacity model, shown above, has low of 9"...Hydraulic lift, 5¾"...Extension screw, 3"...High of 17⅜"...Wt. 37 lbs.

It will pay you to equip every car and truck in your fleet with a new Hein-Werner Hydraulic Jack . . . Every model in this complete line is an exceptional value—and when you consider the sturdy construction, ease of operation, safety factors and the price—you surely will agree that in buying a H-W jack *you get a lot of value for little money.* For example—the 12 ton model (illustrated at right)—only $17.50 (West Coast $18.50).

Complete line includes the "Bumper-Lift" and the "Bullet" 1½ ton capacity jacks for passenger cars . . . Also 2 ton "Light Truck Special," 3, 5, and 8 ton capacity jacks for trucks, and 12 and 20 ton jacks for trucks and buses . . . And a complete line of FLOOR JACKS—1½, 2, 3 and 4 ton capacity . . . Ask your jobber or write us for 1940 prices and details on complete line.

HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin

FEW MODELS ENGINEERED TO DO THE WORK OF MANY
HEIN-WERNER *hydraulic* **JACKS**

2600 lbs. lighter . . .
200 cu. ft. greater capacity!

built light with
U·S·S COR-TEN

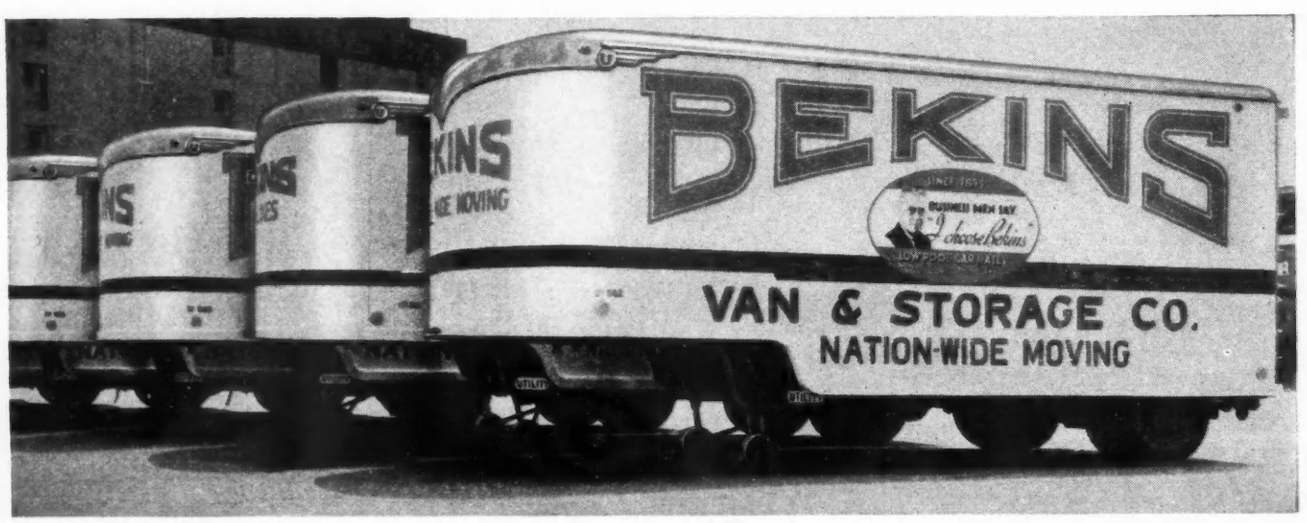
HERE'S how the Utility Trailer Mfg. Co., Los Angeles, turns dead weight into dollars for its customers. In 40 lightweight semi-trailers built for the Bekins Van & Storage Company, U·S·S Cor-Ten was used in the body framing and in all stress-carrying members. Reduction of dead weight provides approximately 2600 pounds greater payload per trailer per trip, has materially increased the earning capacity of the fleet.

Writes H. C. Bennett, Utility's General Manager, "We have more than 500 Cor-Ten steel bodies now in highly successful operation. The weight saving by the use of Cor-Ten steel has been tremendous, contributing largely to our success in the body-building field. We have always used Cor-Ten for all stress-bearing members unless otherwise specified by the customer."

"To show our confidence in Cor-Ten," says Mr. Bennett, "and the advantages gained by its use, we quote one of our advertising folders:—'Cor-Ten has tremendous strength and elasticity which greatly increase resistance to metal fatigue and insure long life and uninterrupted service.' "

Today, Cor-Ten costs so little more per pound than ordinary steel that in many applications the weight you save with Cor-Ten either wipes out any difference in cost or makes it very small indeed.

It will be to your advantage to find out about this unusually versatile steel — to get actual figures on Cor-Ten applied to your designs. We'll be glad to show you how Cor-Ten can be most economically used in your equipment to make it weigh less, last longer, do more work, or sell easier.



HIGH TENSILE STEELS

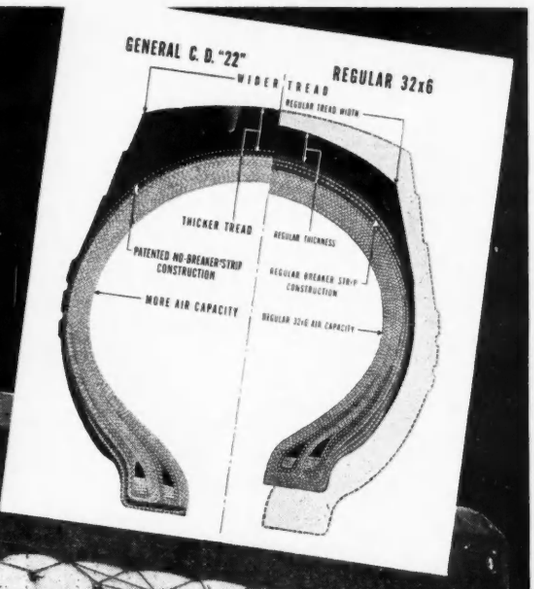
AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY. *Birmingham*

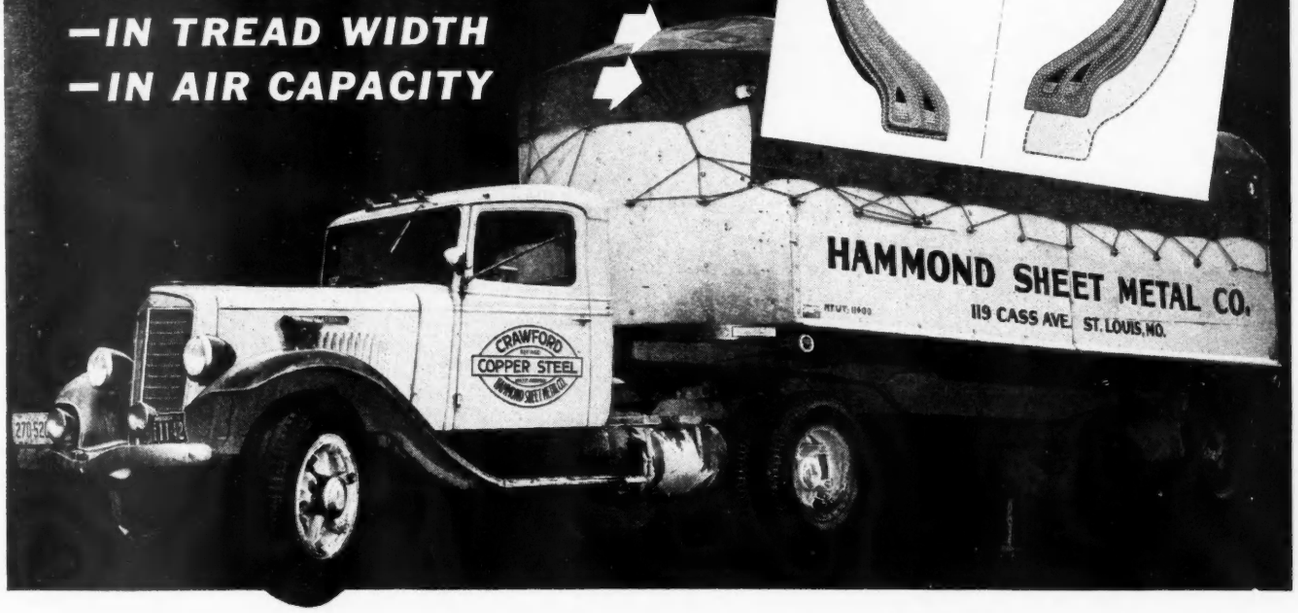
Scully Steel Products Company, Chicago, *Warehouse Distributors* · United States Steel Export Company, New York

UNITED STATES STEEL

YOU CAN SEE THE DIFFERENCE

—IN TREAD THICKNESS
—IN TREAD WIDTH
—IN AIR CAPACITY





A Trial on Your Toughest Run Will Show You the *Difference* IN *Performance!*

♦ From coast to coast, the reports of the General CD's amazing mileage . . . savings . . . and performance in high speed, long distance hauling, keep coming in.

Typical is the Hammond Sheet Metal Company, St. Louis. Flat sheet metals, including steel, iron and brass are heavy stuff. Before placing CDs on its three heavy duty tractor units, tires were a constant source of grief. The unit shown carries 19,000 lbs. of flat metals to Ft. Smith, Arkansas, (800 miles) 3 times weekly... a high speed, day and night run. Mr. Thomas B. Hammond says that General CDs have completely solved the problem of excessive wear. They have proved to be the only tires capable of standing high speed operation economically.

The finest tire in General's long history of outstanding truck tires, the CD speaks for itself in *performance!* Let your General Tire dealer fit a set to the truck of your selection. Then *you* check the *results* for yourself.

THE GENERAL TIRE & RUBBER COMPANY • AKRON, OHIO

Copr. 1940, The General Tire & Rubber Co., Akron, Ohio

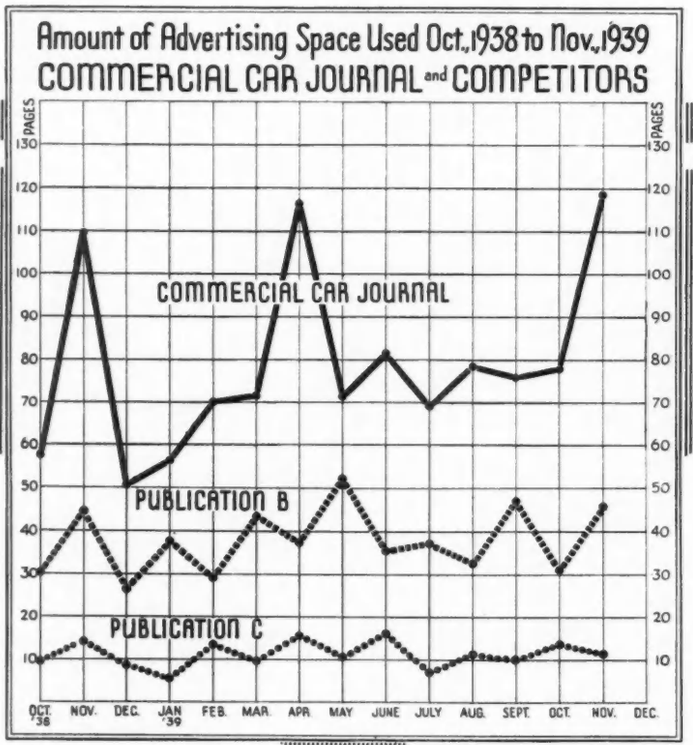
The New **GENERAL C·D·**

AVAILABLE FOR TRUCKS FROM ½ TON TO 10 TONS CAPACITY

When writing to advertisers please mention Commercial Car Journal

COMMERCIAL CAR JOURNAL

Leads in the TRUCK FLEET Field!



——and How It Leads!

The chart above shows how COMMERCIAL CAR JOURNAL leads in advertising pages run. No other publication approaches it. This chart shows part of 1938 and eleven months of 1939. It has been much the same since 1935.

There Are Reasons for This

1. The largest and best TRUCK FLEET Circulation in the world.
2. The finest editorial material appearing in any publication in its field.

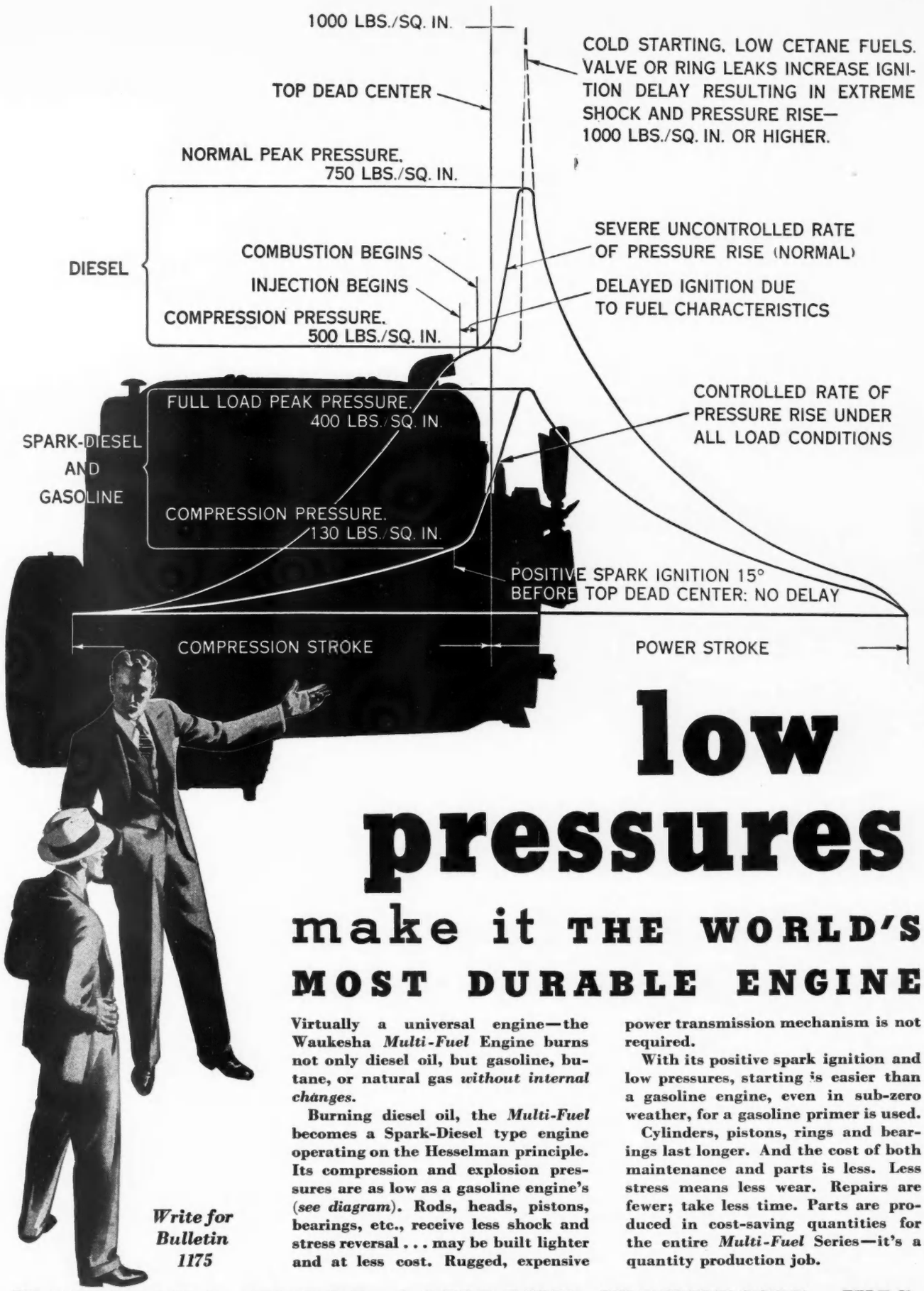
COMMERCIAL CAR JOURNAL has 30,000 distribution monthly. It reaches 25,000 Truck Fleets with 8 or more trucks. 5,000 copies go to the Truck Trade —paid circulation at $3 per year. No other publication equals this.

You advertise with and to the Leaders when you advertise in—

COMMERCIAL CAR JOURNAL

A CHILTON Publication

Chestnut and 56th Street ⓘ Philadelphia, Pa.


1000 LBS./SQ. IN.
TOP DEAD CENTER
NORMAL PEAK PRESSURE. 750 LBS./SQ. IN.
DIESEL
COMBUSTION BEGINS
INJECTION BEGINS
COMPRESSION PRESSURE. 500 LBS./SQ. IN.
COLD STARTING, LOW CETANE FUELS. VALVE OR RING LEAKS INCREASE IGNITION DELAY RESULTING IN EXTREME SHOCK AND PRESSURE RISE— 1000 LBS./SQ. IN. OR HIGHER.
SEVERE UNCONTROLLED RATE OF PRESSURE RISE (NORMAL)
DELAYED IGNITION DUE TO FUEL CHARACTERISTICS
FULL LOAD PEAK PRESSURE. 400 LBS./SQ. IN.
SPARK-DIESEL AND GASOLINE
COMPRESSION PRESSURE. 130 LBS./SQ. IN.
CONTROLLED RATE OF PRESSURE RISE UNDER ALL LOAD CONDITIONS
POSITIVE SPARK IGNITION 15° BEFORE TOP DEAD CENTER: NO DELAY
COMPRESSION STROKE
POWER STROKE

low pressures

make it THE WORLD'S MOST DURABLE ENGINE

Virtually a universal engine—the Waukesha *Multi-Fuel* Engine burns not only diesel oil, but gasoline, butane, or natural gas *without internal changes.*

Burning diesel oil, the *Multi-Fuel* becomes a Spark-Diesel type engine operating on the Hesselman principle. Its compression and explosion pressures are as low as a gasoline engine's (*see diagram*). Rods, heads, pistons, bearings, etc., receive less shock and stress reversal . . . may be built lighter and at less cost. Rugged, expensive power transmission mechanism is not required.

With its positive spark ignition and low pressures, starting is easier than a gasoline engine, even in sub-zero weather, for a gasoline primer is used.

Cylinders, pistons, rings and bearings last longer. And the cost of both maintenance and parts is less. Less stress means less wear. Repairs are fewer; take less time. Parts are produced in cost-saving quantities for the entire *Multi-Fuel* Series—it's a quantity production job.

Write for Bulletin 1175

WAUKESHA MOTOR COMPANY, WAUKESHA, WIS.

NEW YORK TULSA LOS ANGELES

When writing to advertisers please mention Commercial Car Journal

WHY 20 M.P.H.?

IS a test at 20 M. P. H. sufficient evidence that an emergency brake CAN handle the vehicle in *real* emergencies? . . .

☆

Just give this a little thought:

Are trucks and buses always run at 20 M. P. H.?

Do most emergencies occur only at 20 M. P. H.?

Are service brakes ALWAYS in PERFECT CONDITION?

If not, and emergencies occur above 20 M. P. H., WHAT THEN?

Should emergency brakes be used only for parking and getting PAST INSPECTION?

Is it a good policy to neglect so IMPORTANT an ITEM as the EMERGENCY BRAKE at the risk of a life, just to save a few dollars of the original vehicle cost?

AMERICAN CABLE DIVISION
AMERICAN CHAIN
& CABLE COMPANY, INC.
12-252 GENERAL MOTORS BLDG.,
DETROIT, MICHIGAN
SAN FRANCISCO:
630 THIRD STREET

Be prepared for ALL emergencies at ANY speed . . .

***Specify* TRU·STOP FOR ALL STOPS**

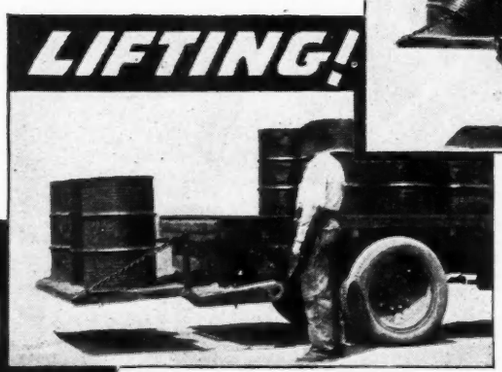
Continental engines are considered the "Standard of Comparison" for fast, dependable highway service.

Operators who are alert to mile-after-mile profit are enjoying the matchless performance of Continental "Red Seal" Power.

It's a ~~FEDERAL~~ powered by Continental's widely used 22R *'Red Seal'* overhead valve engine

Continental Motors Corporation
MUSKEGON, MICHIGAN

Seven years of time-tried service under all types of trucking operations and conditions have proven that whatever you haul and however you haul it the MODERN TRUCK LOADER saves you time, money and trouble. Hydraulically-powered from the truck engine, this elevating endgate is mounted directly on the chassis, independent of the body.



Quickly, easily, smoothly the MODERN TRUCK LOADER does the work of two men. When not in use the endgate can be swung up or down as any ordinary gate. The MODERN TRUCK LOADER is adaptable to any make or size of truck.

Ground to bed level in twelve seconds with a one-ton load! Tremendous saving in loading time . . . great increase in rolling time for truck owners everywhere!

The MODERN TRUCK LOADER is simply operated by a single lever that controls all movements; stops automatically at bed or ground level.

MODERN TRUCK LOADER

Progressive truck owners—for more descriptive folder and full information mail coupon today to **Young Iron Works, Room 11, 2951 First South, Seattle.**

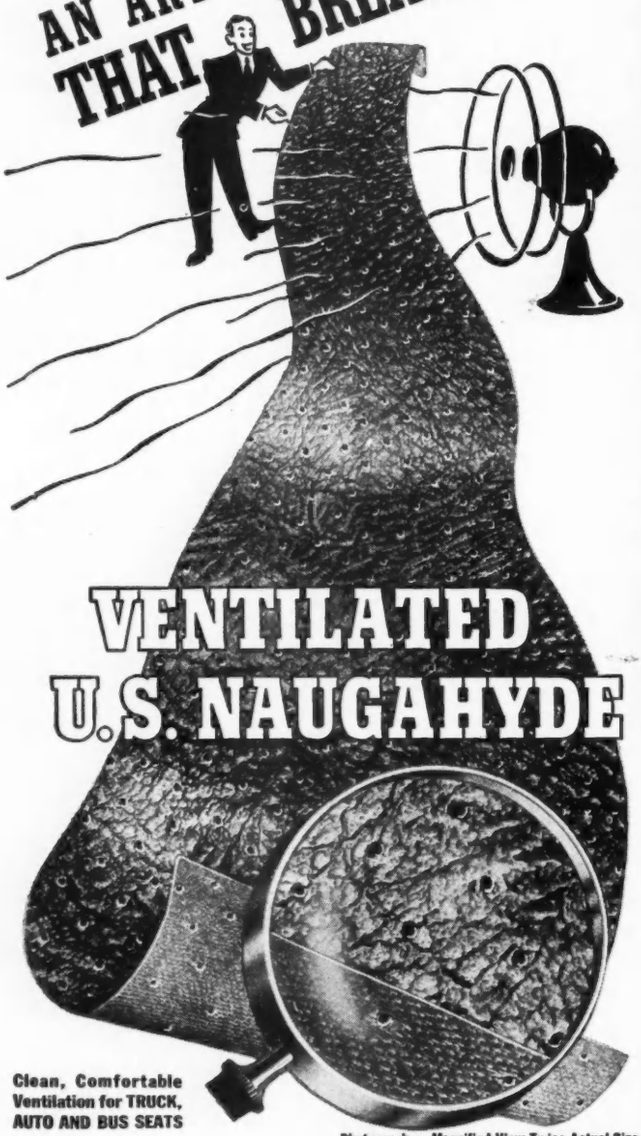
Name _____

Address _____

City & State _____

When writing to advertisers please mention Commercial Car Journal

AT LAST! AN ARTIFICIAL LEATHER THAT BREATHES!



VENTILATED U.S. NAUGAHYDE

Clean, Comfortable Ventilation for TRUCK, AUTO AND BUS SEATS

Photograph — Magnified View Twice Actual Size

Here it is—the seat-covering you've been wanting for years:

The Genuine U. S. NAUGAHYDE you've always known as the longest-wearing low-cost upholstery—with free-breathing air pores added by an exclusive, patented, process *that doesn't affect the wear!*

The air pores are not punched, but smoothly *seared* or "welded" into the tough leather-fibre-and-rubber-composition, leaving no raw edges. The backing retains all its rugged strength, too—because the threads are not cut, but *permanently spread apart* to form each pore.

Ventilated Naugahyde comes in all the color-and-grain combinations of regular Naugahyde! Write now for FREE samples of both.

Get the FULL COMFORT of Your Modern Deep Cushioning!

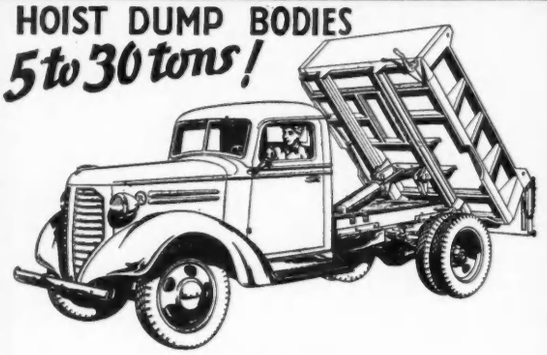
Use a covering that brings out the full deep-flexing effect. Ventilated Naugahyde will do it because it's both perfectly flexible and free-breathing. These qualities are even more important with the super-resilient, self-ventilating, whipped latex cushioning, known as "U. S. ROYAL FOAM", now so widely accepted.

COATED FABRICS DIVISION

UNITED STATES RUBBER COMPANY MISHAWAKA INDIANA

ANTHONY HYDRAULIC with "LOW LOADING HEIGHT"....

HOIST DUMP BODIES *5 to 30 tons!*



REMEMBER!

Anthony furnishes over 2500 types, models, sizes, shapes and capacities of Hydraulic Hoist Dump Bodies to meet today's hauling and dump equipment needs.

All ANTHONY Hydraulic Hoist Dump Bodies, from the smallest to the largest, have "LOW LOADING HEIGHT," and at NO EXTRA COST.

HYDRAULIC HOIST DUMP BODIES

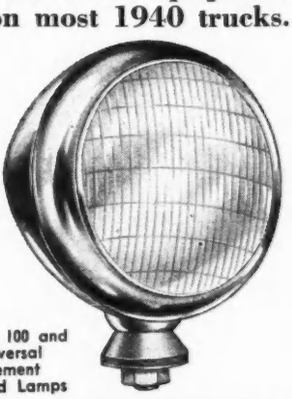
ANTHONY Company, Inc. STREATOR, ILL.

STEEL EXPRESS BODIES SNOW PLOWS and KINDRED EQUIPMENT

The New **KING BEE SEALED BEAM (DOUBLE FILAMENT) DRIVING LAMP**

Style Nos. 102 and 103 Auxiliary Driving Lamps

This latest King Bee lighting development, at a small additional cost, brings your lighting equipment up-to-date. Uses the No. 4030 Mazda bulb, standard equipment on most 1940 trucks.



Style Nos. 100 and 101 Universal Replacement Truck Head Lamps

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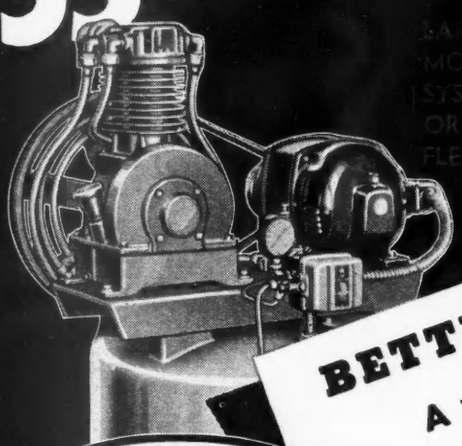

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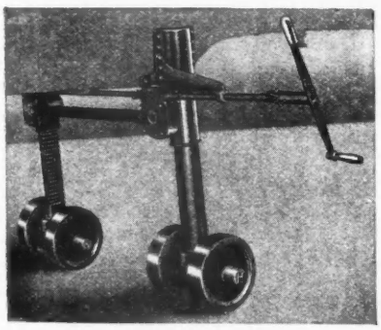

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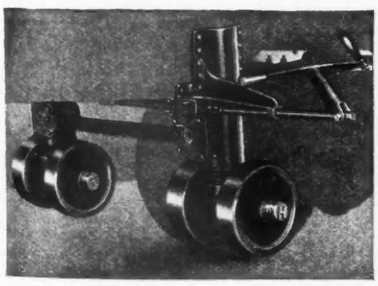

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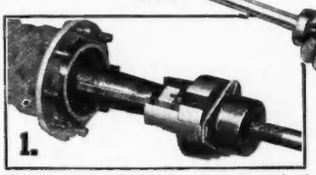
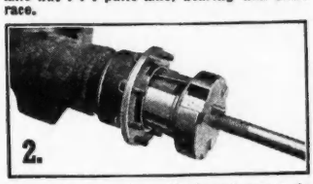
CUT THE COST OF "LAY-UP" TIME

Pull axles this faster, safer way



1.

Axle-pulling attachment screws to end of bearing race remover, grips tightly behind axle nut . . . pulls axle, bearing and outer race.



2.

Inner race removing attachment screws to tool shaft . . . has 3 jaws which contract to enter race, expand to grip inner edge for pulling.

3.

Attachment for pulling grease retainer screws to end of puller shaft has two thin tapered jaws which slip through opening in retainer, expand behind it.

Put "pay-loads" back on the road quickly with this sturdy tool that makes axle pulling simple and safe. Just 3 operations using 3 attachments removes entire axle assembly . . . pulls the tightest race—does the complete job in a fraction of the time required by other methods. The Snap-on Universal Axle Puller fits any car or truck—handles easily. It's a time and money saver in truck and fleet maintenance—a "life saver" on trouble jobs. Ask your Snap-on salesman for a demonstration or write

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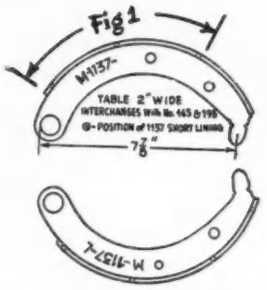

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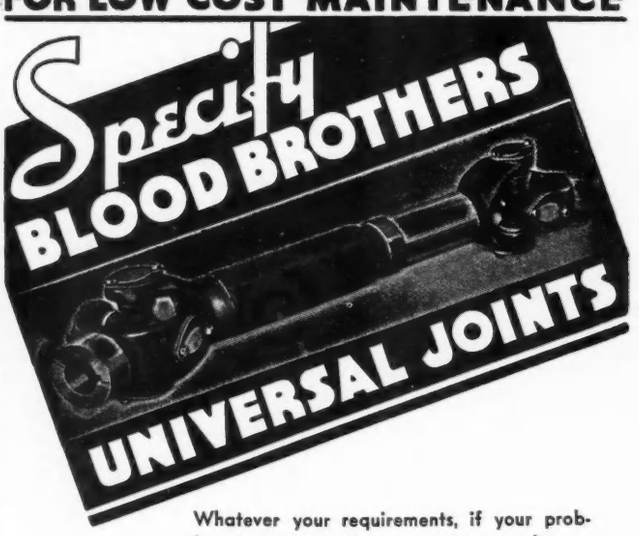

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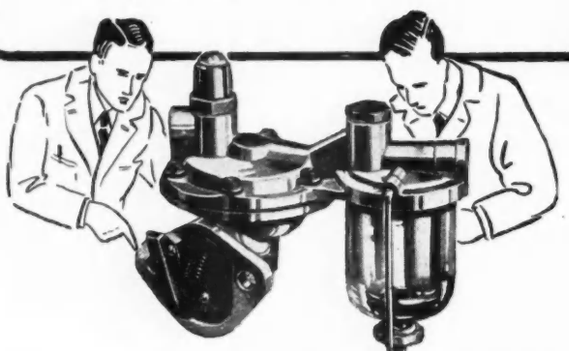

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All AIRTEX Pumps have AIRTEX Diaphragms—guaranteed for 50,000 miles.

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Quality ELECTRICAL AUTOMOTIVE EQUIPMENT

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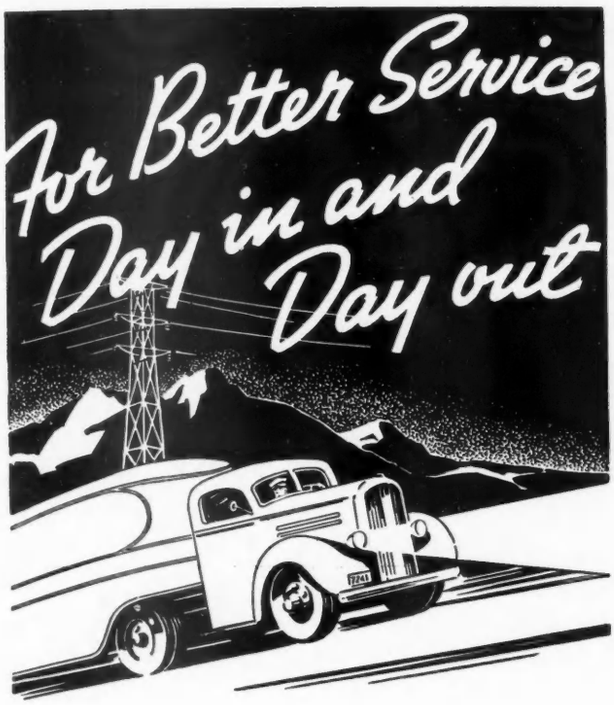

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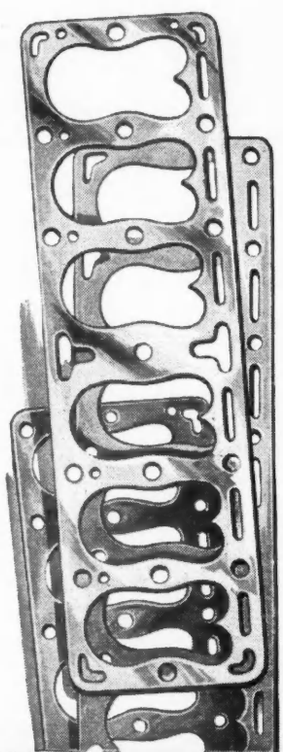

● Fitzgerald Gaskets are designed and built to meet the most strenuous demands of continuous operation—hour after hour, day after day.

The Fitzgerald service is complete, including gaskets, oil and grease retainers for every need. You can count on Fitzgerald to give your vehicles 100% gasket performance. Your jobber will give you prompt service . . . The Fitzgerald Manufacturing Company, Torrington, Conn.—Branches, Chicago and Los Angeles—

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Pierce Fly-ball Governors

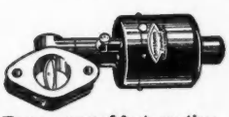
Won't Slash into your ENGINE HORSE-POWER

The difference in governor performance is the difference in the *swiftness* of movement of the Governor Valves, responsive to changes in engine (or vehicle) speed.

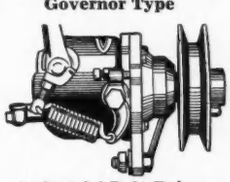
Thus, a slow moving Governor Valve begins to slash into the power of the motor long before the governed speed point is reached. The engine is starved of horsepower when power is needed.

But there's no costly slash into engine horsepower when Pierce Zone Control Fly-ball Governors are used. For within the short space of 2 seconds, *slightly more than four ticks of a watch*, Pierce Zone Control Governor Valves move from a fully open to a fully closed position, and vice versa. (Less than 100 engine r.p.m.)

Pierce Governors have long been available for Industrial Engines, and for Automotive Engines that provided for an internal governor drive. *But now they may be had for road speed control* (transmission driven), *or for engine speed regulation and control* (distributor driven) *for all makes and models of vehicles.*



Tamperproof Automotive Governor Type



Industrial Belt-Drive Governor Type

Moreover, with Pierce Governors there is less shifting of gears. High gear is used more frequently, and for longer intervals. Therefore, driving time between points is decreased. Fuel consumption is reduced. And pay-load income increased.

Ask your wholesaler for more facts, or write directly to:

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WORLD'S LARGEST GOVERNOR BUILDERS

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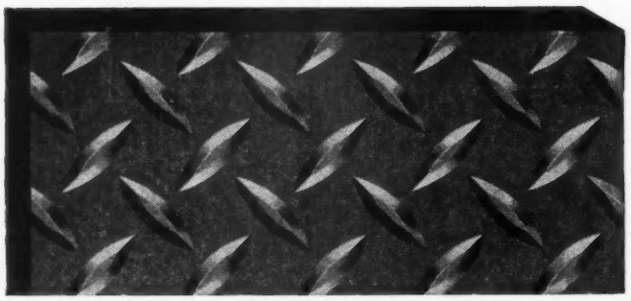

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"A.W." *Rolled Steel* **FLOOR PLATE**

Safe in any weather. Crack-proof. heat-proof, oil-proof. No maintenance expense. Booklet on request.

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Truck owners find that truck tire costs hit rock bottom when they switch to Goodrich Silvertowns. Here's why: Silvertowns have a new invention—Triple Protection—built into the sidewall. It positively checks 80% of all premature failures. It cuts down on tire delays—adds mileage. See a Goodrich dealer for prices.

Goodrich *Triple Protected* **Silvertowns**

FOR TRUCKS AND BUSES

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MOTOR TRUCKS ARE BUILT TO ENDURE

GASOLINE *and* **DIESEL POWERED**

Capacities 18,000 Pounds Gross and up

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Every shop bench should be equipped with assortments of washers. WHITEHEAD has all S. A. E. standard sizes, very reasonably priced. Order through your jobber.

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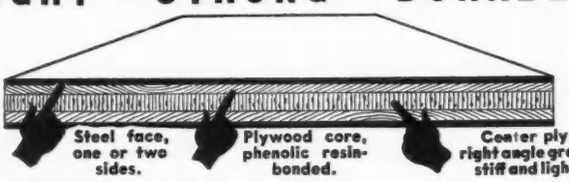

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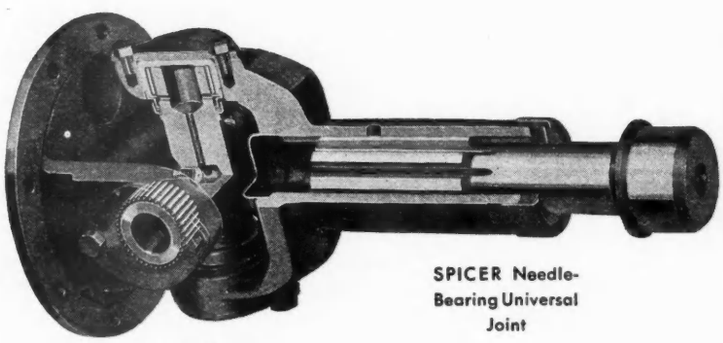

SPICER Needle-Bearing Universal Joint

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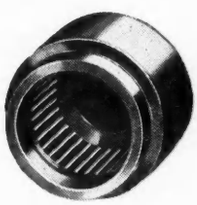

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Spicer SERVICE TESTED LABORATORY TESTED

● When you specify Spicer Needle-Bearing Universal Joints you get the advantages of Spicer's 37 years of experience in designing and building the features you want most. Spicer Joints give you greater all-around efficiency, less friction, quieter operation, positive lubricant retention, increased load capacity, wider angularity, fewer reciprocating parts, longer life. All these features have been tested and proved through millions of miles of service in passenger car, truck, bus and tractor motors. To get the results in better performance and economical operation, always specify genuine Spicer Universal Joints.

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SPICER UNIVERSAL JOINTS

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THE MAGAZINE FOR FLEET OPERATORS

FEBRUARY 1940

REO SUPERIORITY

is based on FACT

COMPARATIVE SPECIFICATIONS—REO VS. FIVE OTHER TRUCKS 2-TON CLASS

	REO	TRUCK A*	TRUCK B*	TRUCK C*	TRUCK D*	TRUCK E*
Gross Rating	15000#	14600#	15500#	14000#	14700#	15000#
Frame Size	9" x 3" x 1/4"	8 1/16" x 3" x 7/32"	8 1/16" x 3" x 1/4"	8 3/32" x 2 25/32" x 7/32"	8 1/16" x 3 1/32" x 1/4"	7 15/16" x 3" x 7/32"
Wheelbase	120" 145" 165"	137" 149" 161" 179"	133 3/4" 157 3/4" 175 3/4"	136" 148" 160"	139 3/4" 151 3/4" 163 3/4" 175 3/4"	132 1/2" 144 1/2" 156 1/2" 174 1/2"
C/A Dimensions	60" 85" 105"	60" 72" 84" 102"	60" 84" 102"	60" 72" 84"	60" 72" 84" 96"	60" 72" 84" 102"
Rear Ax. to EOF	50" 61" 72"	44" 56" 56" 56"	47" 53" 59"	36" 60" 60"	48" 54" 60" 72"	40" 40" 54" 66"
Max Body Length	9' 12' 15'	9' 11' 13' 15'	9' 13' 16'	9' 10' 12'	9' 11' 12' 14'	9' 10' 12' 15'
Turning Radius	19'-3"	23'-2"	25'	25'	NOT AVAILABLE	NOT AVAILABLE
Main Bearings	7	4	4	4	7	7
Serv. Brake Area	327 SQ. IN.	293 SQ. IN.	342 SQ. IN.	322 SQ. IN.	306 SQ. IN.	325 SQ. IN.

*5 LEADING COMPETITIVE TRUCKS

Compare the new "Moreload" REO models with ANY other conventional present-day truck. You will find REO gives you stronger frames, more load space on shorter wheelbase, better weight distribution on all tires, shorter turning radius, generous brake area—plus the time-proven reliability of the Reo "Gold Crown" engine.

If a truck excels on a basis of *mechanical specifications*—if it has an unrivalled reputation for *dependability*—if its appearance is *outstanding*—if prices are *favorable*—if good service on repair parts is assured—if it offers all these things, then unquestionably—REO IS THE TRUCK TO BUY!

REO MOTORS, INC. LANSING, MICH.

PRESENTING
DODGE *Job-Rated TRUCKS

*Job-Rated MEANS: A Truck That Fits YOUR Job! Here's Why!

	DODGE	TRUCK 2	TRUCK 3
ENGINES	6	1	3
WHEELBASES	17	9	6
GEAR RATIOS	16	6	9
CAPACITIES (Ton Rating)	6	3	4
STD. CHASSIS and BODY MODELS	96	56	42
PRICES Begin At	$465	$450	$474.19

Prices shown are for ½-ton chassis with flat face cowl delivered at Main Factory, federal taxes included—state and local taxes extra. Prices subject to change without notice. Figures used in the above chart are based on published data.

ONE SURE WAY OF GETTING A TRUCK TO FIT YOUR JOB!

WHEN YOU BUY a new 1940 Dodge truck you get a Job-Rated truck! *You can get a truck that fits your particular hauling needs.* Each truck in the broad line of Dodge Job-Rated trucks is designed and built throughout to handle its maximum capacity. From engine to rear axle each Dodge Job-Rated truck is *engineered and sized right* to deliver *top* performance with dollar-saving economy. That's why your next truck can be the best truck you ever owned . . . more dependable, more economical . . . the source of more satisfaction . . . *a truck that fits your job!*

GET THIS FREE BOOKLET EXPLAINING A BETTER WAY TO BUY A TRUCK TO FIT YOUR JOB

Before you buy any truck, *get this booklet* from your Dodge dealer or write to Dodge Division, Chrysler Corporation, Detroit, Mich.

DODGE JOB-RATED TRUCKS ARE PRICED WITH THE LOWEST FOR EVERY CAPACITY

6 ENGINES

Each Dodge truck is powered *right* for the hauling job—with an engine specifically engineered for the truck in which it is installed.

4 CLUTCHES

Each Dodge Job-Rated truck has a clutch that is extra big—extra strong—and built to last because it's sized to match the job.

3 TRANSMISSIONS

Dodge trucks have 3-speed, 4-speed or 5-speed transmissions according to the power and size of the truck. All *rate* for the job!

8 REAR AXLES

In ½-ton to 3-ton capacities a total of eight different rear axles is used. Each is *sized for the truck*...and the load it will haul.

20 FRAMES

One of twenty frames gives durable strength to each Dodge Job-Rated truck—assuring the right foundation for its rated load.

9 SPRING Combinations

Dodge springs *"stand up to the load"* because correctly sized and designed springs are used on each Dodge Job-Rated truck.

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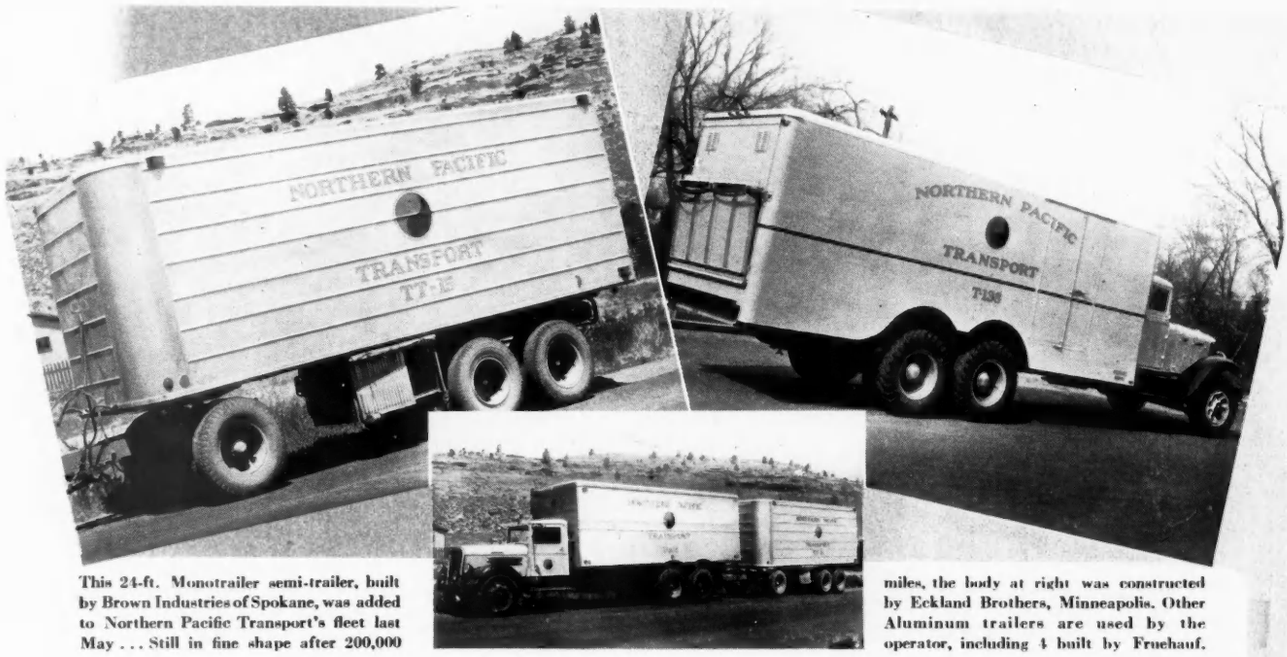
DEPEND ON DODGE *Job-Rated TRUCKS

Dependable DODGE TRUCK SERVICE *Everywhere*

SEE YOUR DODGE DEALER FOR DEPENDABLE USED TRUCKS

3 · 2 · 1½ · 1 · ¾ · ½-TON CAPACITIES · · 96 STANDARD CHASSIS AND BODY MODELS ON 17 WHEELBASES



This 24-ft. Monotrailer semi-trailer, built by Brown Industries of Spokane, was added to Northern Pacific Transport's fleet last May . . . Still in fine shape after 200,000 miles, the body at right was constructed by Eckland Brothers, Minneapolis. Other Aluminum trailers are used by the operator, including 4 built by Fruehauf.

Field Report on: EQUIPMENT BUILT FOR 7,000 lbs. EXTRA PAYLOAD!

The truck has a 22-ft. Aluminum body.

The trailer is a 24-ft. job, built of Aluminum on the monocoque* principle.

The operator is Northern Pacific Transport, and N. P. T. carries three thousand *extra* pounds of payload on the truck body, and four thousand *extra* in the trailer, simply because Aluminum makes the equipment lighter.

This has been going on since 1935, when Northern Pacific bought its first equipment constructed of Aluminum. Since then Aluminum units have been added to the fleet steadily. Greater payload is one reason for using Aluminum; note, in this connection, that Northern Pacific Transport chooses the superlatively efficient monocoque type of construction. And the operator also cites lower maintenance costs; the first body, bought five years ago, is still in fine condition, giving excellent service. They also save on paint, finding it desirable to leave the polished Aluminum surfaces unpainted.

Aluminum construction can give these combined advantages of lightness and good service. Because Aluminum is naturally light, the sheets and shapes used in an Aluminum structure have plenty of thickness, to make a stiff, strong, lasting unit. Lightness for extra payload, and strength for long service, are combined in construction with Alcoa Aluminum Alloys. ALUMINUM COMPANY OF AMERICA, 2139 Gulf Building, Pittsburgh, Pennsylvania.

**MONOCOQUE: Hardshell type of construction using full strength of panels to bear load, making a stronger, lighter structure without any chassis.*

FOR BONUS LOAD WITH STRENGTH AND SAFETY

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FWD TRUCKS

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